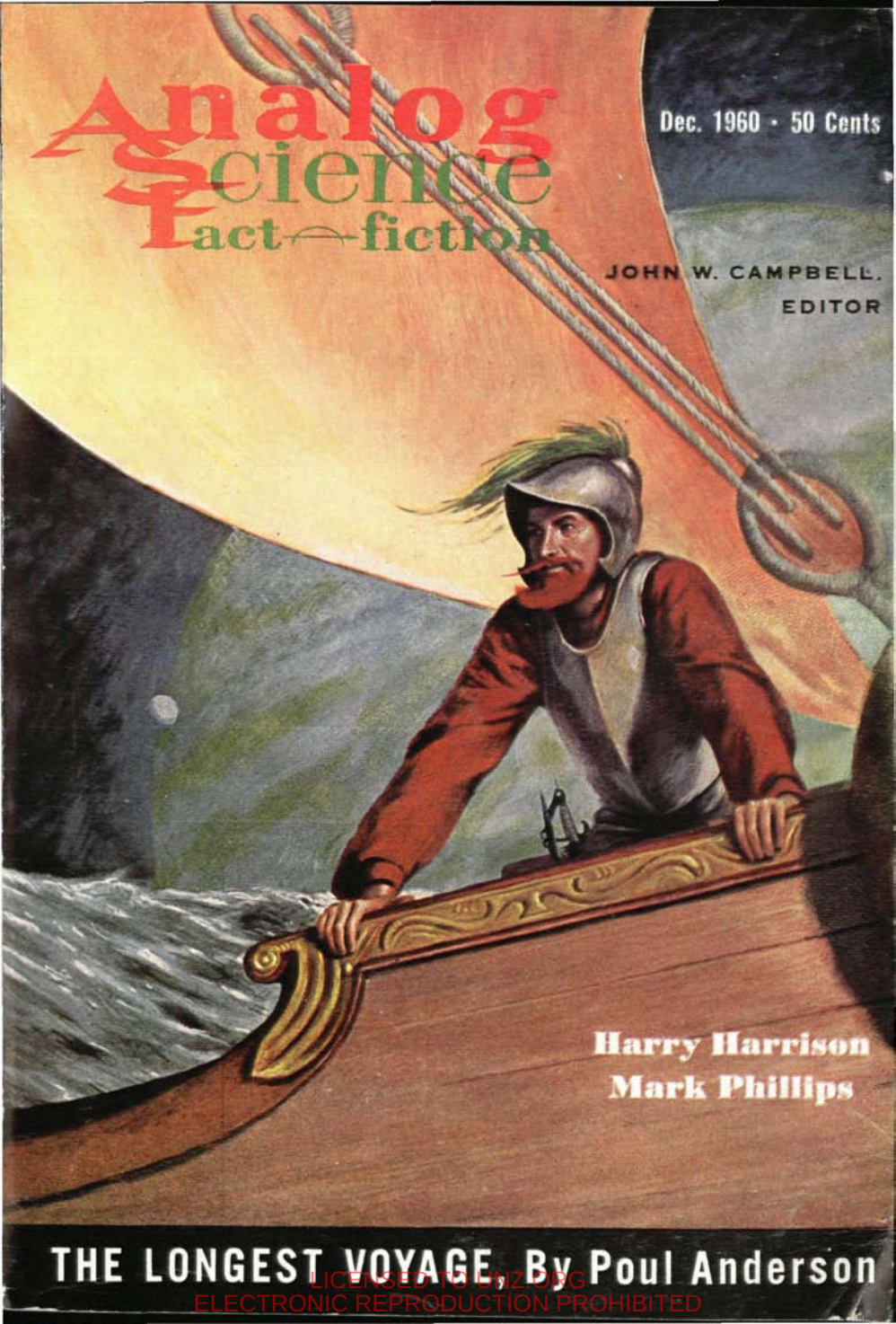


LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Make over 200 Small Computing and Reasoning Machines with . . . BRAINIAC®

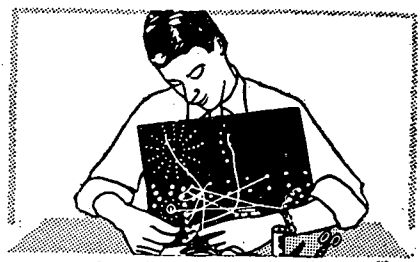
NEW 1960 ELECTRIC BRAIN CONSTRUCTION KIT

WITH OUR BRAINIAC KIT K18, you can build over 200 small electric brain machines and toys which "think," compute, reason, and display intelligent behavior. Each one works on a *single flashlight battery . . . is* FUN *to make.* FUN to use and play with, and TEACHES you something new about electrical computing and reasoning circuits. All connections with nuts and bolts—no soldering required. Originated and produced by Berkeley Enterprises. Brainiac is the result of 10 years' design and development work with miniature mechanical brains including: Geniac®, Tyniac, Relay Moe (automatic relay machine playing tit-tat-toe—pictured in Life Magazine, March 19, 1956), Simon (miniature automatic digital computer with 129 relays —see "Simple Simon" by E. C. Berkeley in *Scientific American, November* 1950). Squee (electronic robot squirrel—see "Light Sensitive Electronic Beast" by E. C. Berkeley in Radio Electronics, December, 1951), etc.

PROGRAMMING *YOUR* OWN PROBLEMS FOR THE BRAINIAC!

The Brainiac is the smallest and lowest-cost semi-automatic, general-purpose digital computer existing. Many problems in ALL fields of knowledge and business can be programmed for the Brainiac—to the extent that a number of versatile multiple switches can express the problem. We shall be glad to program YOUR OWN problems. Write us—no charge for simple problems, modest charge for complicated ones.

WHAT CAN YOU MAKE WITH BRAINIAC KIT K18? Over 200 machines including—LOGIC MACHINES: Syllogism Prover, Intelligence Test, Boolean Algebra Circuits, Douglas MacDonald's Will Analyzer, Diagnosing Motor Car Trouble, etc. GAME-PLAYING MACHINES: Tit-Tat-Toe, Nim, Wheeled Bandit, Black Match, Sundorra 21, etc. COMPUTERS: That add, subtract, multiply or divide using decimal or binary numbers. Forty-Year Calendar, Prime Number Indicator, Money-Changing Machine, etc. CRYPTOGRAPHIC MACHINES: Coders, Decoders, Lock with 15,000,000 Combinations, etc. PUZZLE-SOLVING MACHINES: The Missionaries and the Cannibals, Age-Guessing Machine, Submarine Rescue Chamber, Fox-Hen-Corn & Hired Man, Uranium Space Ship and the Space Pirates, The Three Monkeys Who Spurned Evil, General Alarm at the Fortress of Dreadeerie, etc. QUIZ MACHINES: How to Tell an Aardvark from an Armadillo, The Waxing and the Waning Moon, Polar Air Routes, history, geography, trigonometry, grammar, statistics, calculus, etc.



WHAT COMES WITH YOUR BRAINIAC KIT . . .
Complete Plans, Instructions, Explanations and Hardware:

- Every part needed to build Brainiacs, Tyniacs—over 600 pieces including control panel, multiple switch discs, jumpers, 116 patented improved wipers, bulbs, sockets, washers, wire, battery and special tools.
- Full descriptions and specifications for 201 computing, reasoning, arithmetical, logical, puzzle-solving and game-playing machines and experiments.
- Over 170 circuit diagrams including 46 exact wiring templates.
- Textbook "Brainiacs—201 Small Electric Brain Machines and *How to Make Them*" *by "Edmund C. Berkeley, 1959, 256 pages,* including as chapters "Introduction to Boolean Algebra for Circuits and Switching" and "How to Go from Brainiacs and Geniacs to Automatic Computers."

only $18.95 . . .

MORE VALUE • MORE FEATURES

WHO IS EDMUND C. BERKELEY? Author of **"Giant Brains or Machines That Think,"** Wiley, 1949, 270 pp. (15,000 copies sold); author of **"Computers: Their Operation and Applications,"** Reinhold, 1956, 366 pp; author of **"Symbolic Logic and Intelligent Machines,"** Reinhold 1959, 203 pp.; Editor and Publisher of the magazine, **"Computers and Automation;** Maker and Developer of small robots; Fellow of the Society of Actuaries; Secretary (1947-53) of the Association for Computing Machinery; Designer of all the Tyniacs and Brainiacs; Designer of the patented Multiple Switch Disc and other features in the 1955 Original kit.

BRAINIAC KIT (1960 Model) **K18** . . the kit with limitless possibilities—backed by an organization of 12 years' standing in the computer field. **$18.95**
(For shipment west of Mississippi, add 80¢; outside U. S., add $1.80)

7-Day Full Refund Guarantee If Not Satisfactory

MAIL THIS COUPON

BERKELEY ENTERPRISES, Inc.
815 Washington St., R-226, Newtonville 60, Mass.

Please send me Brainiac Kit K18. (Returnable in 7 days for full refund if not satisfactory—if in good condition.) I enclose $———— in full payment.

My Name and Address are attached.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Anderson
prize winner
& 4th

Analog Science Fact—fiction

Novelettes

The Longest Voyage, *Poul Anderson* 8
The K-Factor, *Harry Harrison* 37

Short Stories

The Untouchable, *Stephen A. Kallis, Jr.* .. 59
Gun for Hire, *Mack Reynolds* 104
Man of Action, *Donald E. Westlake* 116

Serial

Occasion for Disaster, *Mark Phillips*..... 64
(Part 2 of Four Parts)

Science Fact

"They Do It With Mirrors . . ."
John W. Campbell 83

Readers' Departments

The Editor's Page 4
In Times To Come 36
The Reference Library,
P. Schuyler Miller 159
Brass Tacks 170

JOHN W. CAMPBELL
Editor

KAY TARRANT
Assistant Editor

Advertising Manager: WALTER J. McBRIDE
H. A. Staab, *Art Director*

COVER BY SCHOENHERR

Illustrations by Douglas, Schoenherr, Summers and van Dongen

VOL. LXVI
NO. 4
DECEMBER 1960

The editorial contents have not been published before, are protected by copyright and cannot be reprinted without publisher's permission. All stories in this magazine are fiction. No actual persons are designated by name or character. Any similarity is coincidental.

Analog Science Fact & Fiction published monthly by Street & Smith Publications, Incorporated, at 575 Madison Avenue, New York 22, New York. Arthur Z. Gray, President; Robert E. Park, Vice-President and Advertising Director; Thomas H. Kaiser, Secretary-Treasurer. Copyright © 1960 by Street & Smith Publications, Inc. All rights reserved. Printed in the U. S. A. Second-class postage paid at New York, N. Y. and at additional mailing offices. Subscription $5.00 for one year, $9.00 for two years, and $12.00 for three years in the United States, possessions and Canada: $6.25 for one year, $11.00 for two years, $14.50 for three years in Pan American Union, Philippine Islands and Spain. Elsewhere $6.50 for one year, $11.50 for two years, and $15.00 for three years. When possible allow four weeks for change of address. Give old address and new address when notifying us. We cannot accept responsibility for unsolicited manuscripts or art work. Any material submitted must include return postage. All subscriptions should be addressed to Subscription Department, Street & Smith Publications, Incorporated, Boston Post Rd., Greenwich, Connecticut.

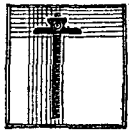
Send notice of undelivered copies on Form 3579 to: Analog Science Fact & Fiction, McCall Street, Dayton 1, Ohio.

NEXT ISSUE ON SALE
DECEMBER 20, 1960

$5.00 per Year in U. S. A.
50 Cents per Copy

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

FINAL REPORT ON THE DEAN DEVICE



THIS will have to be the final report on the Dean device that ANALOG will carry as such. The article in our June issue, "The Space Drive Problem," attracted attention enough so that Dean's device is now being thoroughly and adequately investigated by competent scientists and engineers. Those investigations are still in progress; it will definitely take time—probably a year or more—before a fully worked out theoretical and engineering analysis of the thing can be made.

We cannot continue to follow the work; much of it is going to duck rapidly behind closed doors; some of it definitely has already.

In the original article, I stated that I *believed* the device did in fact work, but that I could quite well be wrong on that. I made one positive, dogmatic, no-qualifications statement concerning the device: that it deserved adequate study, and that it had not been given that study.

To date, those who have actually examined the device have agreed with that statement; whether it actually works or not, *it deserved study.*

It did not get that deserved and needed study, until *after* the patent was published, and until *after* it was mentioned editorially in this magazine in the December, 1959 issue.

This is a final report, because I am no longer privileged to follow the course of the investigations that have now started. You'll find them published in technical and engineering journals, perhaps, in some years time. It's apt to take a minimum of two years to get any working unit; remember that it is usually a long, difficult, and expensive road from test tube to pilot-plant, to production unit. My personal guesstimate is that, if all goes well, and Dean's device proves to be exactly what he believes it to be, it will take five years, and about thirty megabucks of research, before the first production-line Dean-drive vehicles could be manufactured. The story of what

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

happens during those five years would, no doubt, be of great interest—but it does not belong in these pages, even if I could maintain access to the story.

The principal point of the Space Drive Problem, remember, was not the Dean drive, or whether or not it worked. I stated that repeatedly. The point was, *nobody would look,* and that under the doctrine, the philosophy, of the scientific method, someone with a working model has a right to demand investigation.

The Space Drive Problem was the emotional problem, of emotional resistance to concept-challenging new ideas—not the technical problem of whether a particular unit worked.

If no one is permitted to inject a contra-orthodox idea—if the amateur is rejected because it's contra-orthodox, and the professional who seeks to introduce so anathematized an idea is disbarred, unfrocked, or whatever the appropriate term may be, obviously only those problems which can be solved by development from now-known fundamentals will be open to solution.

There is no possible place in Logic for ingenuity; ingenuity always involves the application of some hyper-logical, intuitive leap—which, once the leap is made, can be reduced to logic.

Kepler, who discovered the famous laws of planetary motion, specifically stated that he sought to find "a magnetic principle" that held the solar system together. He had a hunch, in other words, that an attractive force existed—but unlike Newton, didn't get the answer. Newton, starting with Kepler's laws, did derive it. Reason: Kepler was hopelessly and absolutely blocked by one simple, long-accepted and "obvious" false axiom. He accepted Aristotle's axiom that bodies tend to remain at rest, or come to rest if disturbed. That inertia means a tendency-to-cease-moving.

Just try figuring out what drives the planets in their orbits with that conception of inertia, and you'll see that Kepler never had a chance of solving the problem he was able to state very clearly.

It was Newton's rejection of Aristotle's concept of inertia that made it possible for him to do what Kepler failed to do.

That doesn't mean that Newton's version of inertia is the final, correct, ultimate answer.

But notice this: so long as it is accepted and maintained, a true space drive is absolutely impossible.

My discussion of the space-drive problem was *not* intended as a discussion of a technical device, the Dean unit, but of a human philosophical problem; the emotional forces that block avenues of progress.

Notice carefully that economics is not critical; danger is not crucial, nor even status and acceptance. Men have, age after age, conclusively and repeatedly demonstrated that, for emotional beliefs, they will sacrifice without a qualm their fortunes,

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

their lives, and the respect of their fellows.

On behalf of an emotional conviction, a man will sacrifice position, wealth, health, honor, honesty, ethics, and life. The most honorable of men considers it his honorable duty to lie, cheat, steal, and murder for his emotional convictions. We honor Nathan Hale as a true patriot for having been caught at the business of lying, attempting to steal, and, of course, consider murder, when it contributes to the purpose, honorable. Hale was a somewhat clumsy and amateurish agent; the really successful liars, cheats, and thieves we don't hear about, and they are not honored.

It is essential, if we are to understand the problems of the real world in which we actually live, that we recognize and acknowledge that emotional conviction outweighs any and all other considerations. Neither money, position, ethics, or self-preservation, nor all combined together, can even begin to counterbalance the force of an emotional conviction.

It makes no difference what labels you find attached to a human being—whether he be labeled "scientist" or "judge" or "minister" or "bum" makes no difference; emotional convictions are the determining factors. Logic can do nothing against them. The only forces that can begin to balance them are conflicting emotional convictions.

So long as the space-drive problem is an emotional problem, you can predict trouble in breaking through to space.

Any area where there is an emotional negation will have the same trouble; the evidence will not be examined, or will be destroyed. The most honorable of men will, for an emotionally determined cause, be most rigidly convinced that honor requires that he lie, conceal evidence, or destroy data.

The church fathers sought to suppress Galileo to protect the uninformed from the monstrous distortions Galileo was teaching. It was, they knew, their duty; honor required that they do so.

The measure of a man's honor is the measure of his willingness to work for and defend the things he believes in—not the degree to which he *is* correct.

The intensity of a man's reaction to a problem has no knowable correlation with the correctness of his position—it just feels that way to him.

That fact applies to any human being—whatever auxiliary labels he may also carry.

Dean's device was a purely mechanical, technical, objective device, capable of simple, direct, physical measurement of forces. There was nothing "supernatural" about it. It was completely amenable to physical measurement, with known, existent, instrumentation devices.

Yet Dean had the greatest difficulty getting anyone in official, government science to apply those physical measuring devices to his equipment.

Only after the publication of the

(Continued on page 178)

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

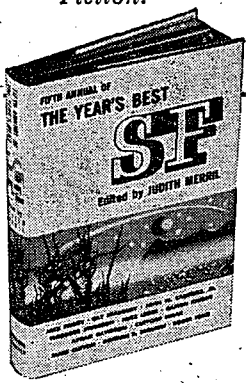
FIFTH ANNUAL OF THE YEAR'S BEST

Edited by JUDITH MERRIL

• Just published: the cream of this year's SF crop by twenty-one writers of the first magnitude — including Daniel Keyes and his Hugo-Award-winning story *Flowers for Algernon.* Among the other authors: Ray Bradbury, John W. Campbell, Jr., Mark Clifton, Avram Davidson, Gordon R. Dickson, Jack Finney, Damon Knight, Fritz Leiber, Clifford Simak, Theodore Sturgeon.

"Any fine, right-minded, red-blooded, loose-living SF fan who doesn't agree that Judith Merril's annual anthologies are the best in the field belongs in Mozambique with the coelacanths." — P. Schuyler Miller, *Astounding Science Fiction.*

Copies ordered by this coupon will be autographed by Miss Merril!



Simon and Schuster, Publishers,
Dept. SF, 630 Fifth Avenue
New York 20, New York

Please send me.....copies of the FIFTH ANNUAL OF THE YEAR'S BEST SF. If not completely satisfied I may return the book(s) in 10 days and owe nothing. Otherwise bill me at $3.95 per copy, plus postage, as payment in full.

Name.....

Address.....

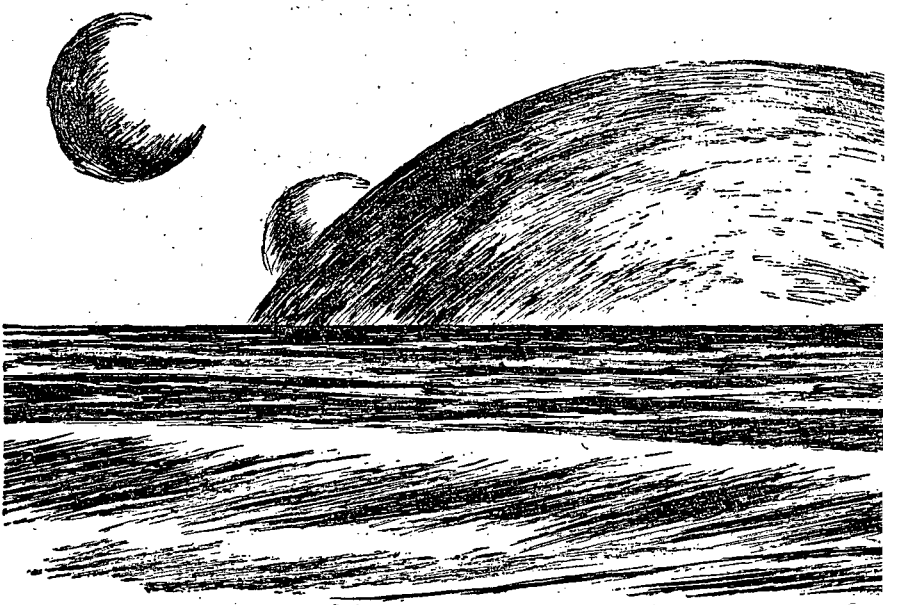
City.....Zone....State.....

☐ Save: Enclose remittance and we pay postage. Same guarantee applies. (NYC residents please add 3% sales tax.)

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

THE LONGEST..

The length of a voyage should not be measured in miles—nor in years. The critical factor is the number of learning experiences along the way . . .

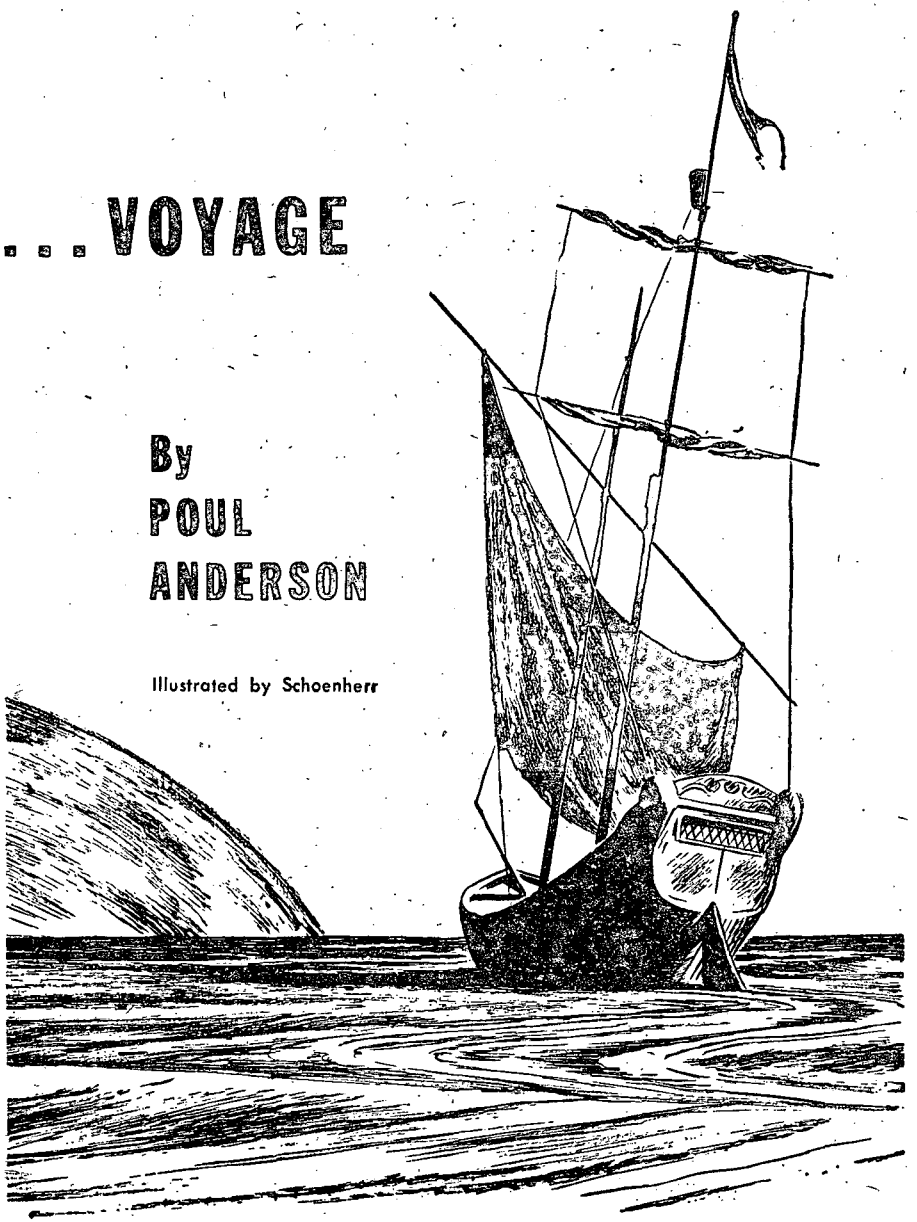


LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

. . . VOYAGE

By
POUL
ANDERSON

Illustrated by Schoenherr



LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

HEN first we heard of the Sky Ship, we were on an island whose name, as nearly as Montalirian tongues can wrap themselves about so barbarous a noise, was Yarzik. That was almost a year after the *Golden Leaper* sailed from Lavre Town, and we judged we had come halfway round the world. So befouled was our poor caravel with weeds and shells that all sail could scarce drag her across the sea. What drinking water remained in the butts was turned green and evil, the biscuit was full of worms, and the first signs of scurvy had appeared on certain crewmen.

"Hazard or no," decreed Captain Rovic, "we must land somewhere." A gleam I remembered appeared in his eyes. He stroked his red beard and murmured, "Besides, it's long since we asked for the Aureate Cities. Perhaps this time they'll have intelligence of such a place."

Steering by that ogre planet which climbed daily higher as we bore westward, we crossed such an emptiness that mutinous talk broke out afresh. In my heart I could not blame the crew. Imagine, my lords. Day upon day upon day where we saw naught but blue waters, white foam, high clouds in a tropic sky; heard only the wind, *whoosh* of waves, creak of timbers, sometimes at night the huge sucking and rushing as a sea monster breached. These were terrible enough to common sailors, unlettered men who still thought the world must be flat. But then to have Tambur hang forever above the bowsprit, and climb, so that all could see we must eventually pass directly beneath that brooding thing . . . and what upbore it? the crew mumbled in the forecastle. Would an angered God not let fall down on us?

So a deputation waited on Captain Rovic. Very timid and respectful they were, those rough burly men, as they asked him to turn about. But their comrades massed below, muscled sun-blackened bodies taut in the ragged kilts, with daggers and belaying pins ready to hand. We officers on the quarterdeck had swords and pistols, true. But we numbered a mere six, including that frightened boy who was myself, and aged Froad the astrologue, whose robe and white beard were reverend to see but of small use in a fight.

Rovic stood mute for a long while after the spokesman had voiced this demand. The stillness grew, until the empty shriek of wind in our shrouds, the empty glitter of ocean out to the world's rim, became all there was. Most splendid our master looked, for he had donned scarlet hose and bell-tipped shoon when he knew the deputation was coming: as well as helmet and corselet polished to mirror brightness. The plumes blew around that blinding steel head and the diamonds on his fingers flashed against the rubies in his sword hilt. Yet when at last he spoke, it was not as a knight of the Queen's court, but in the broad Anday of his fisher boyhood.

"So 'tis back ye'd wend, lads? Wi'

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

a fair wind an' a warm sun, liefer ye'd come about an' beat half round the globe? How ye're changed from yere fathers! Ken ye nay the legend, that once all things did as man commanded, an' 'twas an Andayman's lazy fault that now men must work? For see ye, 'twas nay too much that he told his ax to cut down a tree for him, an' told the faggots to walk home, but when he told 'em to carry him, then God was wroth an' took the power away. Though to be sure, as recompense God gave all Andaymen sea-luck, dice-luck, an' love-luck. What more d'ye ask for, lads?"

Bewildered at this response, the spokesman wrung his hands, flushed, looked at the deck, and stammered that we'd all perish miserably . . . starve, or thirst, or drown, or be crushed under that horrible moon, or sail off the world's edge . . . the *Golden Leaper* had come farther than ship had sailed since the Fall of Man, and if we returned at once, our fame would live forever—

"But can ye eat fame, Etien?" asked Rovic, still mild and smiling. "We've had fights an' storms, aye, an' merry carouses too; but devil an Aereate City we've seen, though well ye ken they lie out here someplace, stuffed wi' treasure for the first bold man who'll come plunder 'em. What ails yere gutworks, lad? Is't nay an easy cruise? What would the foreigners say? How will yon arrogant cavaliers o' Sathayn, yon grubby chapmen o' Woodland, laugh —nay alone at us, but at all Montalir —did we *turn* back!"

Thus he jollied them. Only once did he touch his sword, half drawing it, as if absent-mindedly, when he recalled how we had weathered the hurricane off Xingu. But they remembered the mutiny that followed then, and how that same sword had pierced three armed sailors who attacked him together. His dialect told them he would let bygones lie forgotten: if they would. His bawdy promises of sport among lascivious heathen tribes yet to be discovered, his recital of treasure legends, his appeal to their pride as seamen and Montalirians, soothed fear. And then in the end, when he saw them malleable, he dropped the provincial speech. He stood forth on the quarterdeck with burning casque and tossing plumes, and the flag of Montalir blew its sea-faded colors above him, and he said as the knights of the Queen say:

"Now you know I do not propose to turn back until the great globe has been rounded and we bring to Her Majesty that gift which is most peculiarly ours to give. The which is not gold or slaves, nor even that lore of far places that she and her most excellent Company of Merchant Adventurers desire. No, what we shall lift in our hands to give her, on that day when again we lie by the long docks of Lavre, shall be our achievement: that we did this thing which no men have dared in all the world erenow, and did it to her glory."

A while longer he stood, through a silence full of the sea's noise. Then he said quietly, "Dismissed," turned

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

on his heel and went back into his cabin.

So we continued for some days more, the men subdued but not uncheerful, the officers taking care to hide their doubts. I found myself busied, not so much with the clerical duties for which I was paid or the study of captaincy for which I was apprenticed—both these amounting to little by now—as with assisting Froad the astrologue. In these balmy airs he could carry on his work even on shipboard. To him it scarce mattered whether we sank or swam; he had lived more than a common span of years already. But the knowledge of the heavens to be gained here, that was something else. At night, standing on the foredeck with quadrant, astrolabe, and telescope, drenched in the radiance from above, he resembled some frosty-bearded saint in the windows of Provien Minster.

"See there, Zhean." His thin hand pointed above seas that glowed and rippled with light, past the purple sky and the few stars still daring to show themselves, toward Tambur. Huge it was in full phase at midnight, sprawling over seven degrees of sky, a shield or barry of soft vert and azure, splotched with angry sable that could be seen to move across its face. The firefly moon we had named Siett twinkled near the hazy edge of the giant. Balant, espied rarely and low on the horizon in our part of the world, here stood high: a crescent, but with the dark part of the disk tinged by luminous Tambur.

"Observe," declared Froad, "there's no doubt left, one can *see* how it rotates on an axis, and how storms boil up in its air. Tambur is no longer the dimmest of frightened legends, nor a dreadful apparition seen to rise as we entered unknown waters; Tambur is real. A world like our own. Immensely bigger, certes, but still a spheroid in space: around which our own world moves, always turning the same hemisphere to her monarch. The conjectures of the ancients are triumphantly confirmed. Not merely that our world is round, *pouf*, that's obvious to anyone . . . but that we move about a greater center, which in turn has an annual path about the sun. But, then, how big is the sun?"

"Siett and Balant are inner satellites of Tambur," I rehearsed, struggling for comprehension. "Vieng, Darou, and the other moons commonly seen at home, have paths outside our own world's. Aye. But what holds it all up?"

"That I don't know. Mayhap the crystal sphere containing the stars exerts an inward pressure. The same pressure, maybe, that hurled mankind down onto the earth, at the time of the Fall From Heaven."

That night was warm, but I shivered, as if those had been winter stars. "Then," I breathed, "there may also be men on . . . Siett, Balant, Vieng . . . even on Tambur?"

"Who knows? We'll need many lifetimes to find out. And what lifetimes they'll be! Thank the good God, Zhean, that you were born in this dawn of the coming age."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Froad returned to making measurements. A dull business, the other officers thought; but by now I had learned enough of the mathematic arts to understand that from these endless tabulations might come the true size of the earth, of Tambur, sun and moons and stars, the path they took through space and the direction of Paradise. So the common sailors, who muttered and made signs against evil as they passed our instruments, were closer to fact than Rovic's gentlemen: for indeed Froad practiced a most potent gramarye.

At length we saw weeds floating on the sea, birds, towering cloud masses, all the signs of land. Three days later we raised an island. It was an intense green under those calm skies. Surf, still more violent than in our hemisphere, flung against high cliffs, burst in a smother of foam and roared back down again. We coasted carefully, the palomers aloft to seek an approach, the gunners standing by our cannon with lighted matches. For not only were there unknown currents and shoals—familiar hazards—but we had had brushes with canoe-sailing cannibals in the past. Especially did we fear the eclipses. My lords can visualize how in that hemisphere the sun each day must go behind Tambur. In that longitude the occurrence was about midafternoon and lasted nearly ten minutes. An awesome sight: the primary planet—for so Froad now called it, a planet akin to Diell or Coint, with our own world humbled to a mere satellite thereof!—become a black disk encircled with red, up in a sky suddenly full of stars. A cold wind blew across the sea, and even the breakers seemed hushed. Yet so impudent is the soul of man that we continued about our duties, stopping only for the briefest prayer as the sun disappeared, thinking more about the chance of shipwreck in the gloom than of God's Majesty.

So bright is Tambur that we continued to work our way around the island at night. From sunup to sunup, twelve mortal hours, we kept the *Golden Leaper* slowly moving. Toward the second noon, Captain Rovic's persistence was rewarded. An opening in the cliffs revealed a long fjord. Swampy shores overgrown with saltwater trees told us that while the tides rose high in that bay, it was not one of those roosts so dreaded by mariners. The wind being against us, we furled sail and lowered the boats, towing in our caravel by the power of oars. This was a vulnerable moment, especially since we had perceived a village within the fjord. "Should we not stand out, master, and let them come first to us?" I ventured.

Rovic spat over the rail. "I've found it best never to show doubt," said he. "If a canoe fleet should assail us, we'll give 'em a whiff of grapeshot and trust to break their nerve. But I think, thus showing ourselves fearless of them from the very first, we're less likely to meet treacherous ambuscade later."

He proved right.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

In the course of time, we learned we had come upon the eastern end of a large archipelago. The inhabitants were mighty seafarers, considering that they had only outrigger dugouts to travel in. These, however, were often a hundred feet long. With forty paddles, or with three bast-sailed masts, such a vessel could almost match our best speed, and was more maneuverable. However, the small cargo space limited their range of travel.

Though they lived in houses of wood and thatch, possessing only stone tools, the natives were cultivated folk. They farmed as well as fished; their priests had an alphabet. Tall and vigorous, somewhat darker and less hairy than we, they were impressive to behold: whether nude as was common, or in full panoply of cloth and feathers and shell ornaments. They had formed a loose empire throughout the archipelago, raided islands lying farther north and carried on a brisk trade within their own borders. Their whole nation they called the Hisagazi, and the island on which we had chanced was Yarzik.

This we learned slowly, as we mastered somewhat their tongue. For we were several weeks at that town. The duke of the island, Guzan, made us welcome, supplying us with food, shelter, and helpers as we required. For our part, we pleased them with glassware, bolts of Wondish cloth, and suchlike trade goods. Nonetheless we encountered many difficulties. The shore above highwater mark being too swampy for beaching a vessel as heavy as ours, we must build a drydock before we could careen. Numerous of us took a flux from some disease, though all recovered in time, and this slowed us further.

"Yet I think our troubles will prove a blessing," Rovic told me one night. As had become his habit, once he learned I was a discreet amanuensis, he confided certain thoughts in me. The captain is ever a lonely man; and Rovic, fisher lad, freebooter, self-taught navigator, victor over the Grand Fleet of Sathayn and ennobled by the Queen herself, must have found the keeping of that necessary aloofness harder than would a gentleman born.

I waited silent, there in the grass hut they had given him. A soapstone lamp threw wavering light and enormous shadows over us; something rustled the thatch. Outside, the damp ground sloped past houses on stilts and murmurous fronded trees, to the fjord where it shimmered under Tambur. Faintly I heard drums throb, a chant and stamping of feet around some sacrificial fire. Indeed the cool hills of Montalir seemed far.

Rovic leaned back his muscular form, y-clad a mere seaman's kilt in this heat. He had had them fetch him a civilized chair from the ship. "For see you, young fellow," he continued, "at other times we'd have established just enough communication to ask about gold. Well, we might also try to get a few sailing directions. But all in all, we'd hear little except the old story—'aye, foreign lord, indeed

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

there's a kingdom where the very streets are paved with gold . . . a hundred miles west'—anything to get rid of us, eh? But in this prolonged stay, I've asked out the duke and the idolater priests more subtly. I've been so coy about whence we came and what we already know, that they've let slip a gobbet of knowledge they'd not otherwise have disgorged on the rack itself."

"The Aureate Cities?" I cried.

"Hush! I'd not have the crew get excited and out of hand. Not yet."

His leathery, hooknosed face turned strange with thought. "I've always believed those cities an old wives' tale," he said. My shock must have been mirrored to his gaze, for he grinned and went on, "A useful one. Like a lodestone on a stick, it's dragging us around the world." His mirth faded. Again he got that look, which was not unlike the look of Froad considering the heavens. "Aye, of course I want gold, too. But if we find none on this voyage, I'll not care. I'll just capture a few ships of Eralia or Sathayn when we're back in home waters, and pay for the voyage thus. I spoke God's truth that day on the quarterdeck, Zhean, that this journey was its own goal; until I can give it to Queen Odela, who once gave me the kiss of ennoblement."

He shook himself out of his reverie and said in a brisk tone: "Having led him to believe I already knew the most of it, I teased from Duke Guzan the admission that on the main island of this Hisagazi empire is something I scarce dare think about. A ship of the gods, he says, and an actual live god who came from the stars therein. Any of the natives will tell you this much. The secret reserved to the noble folk is that this is no legend or mummery, but sober fact. Or so Guzan claims. I know not what to think. But . . . he took me to a holy cave and showed me an object from that ship. It was some kind of clockwork mechanism, I believe. What, I know not. But of a shining silvery metal such as I've never seen before. The priest challenged me to break it. That metal was not heavy; must have been thin. But it blunted my sword, splintered a rock I pounded with, and my diamond ring would not scratch it."

I made signs against evil. A chill went along me, spine and skin and scalp, until I prickled all over. For the drums were muttering in a jungle dark, and the waters lay like quicksilver beneath gibbous Tambur, and each afternoon that planet ate the sun. Oh, for the bells of Provien, across windswept Anday downs!

When the *Golden Leaper* was seaworthy again, Rovic had no trouble gaining permission to visit the Hisagazian emperor on the main island. He would, indeed, have found difficulty in not doing so. By now the canoes had borne word of us from one end of the realm to another, and the great lords were all agog to see these blue-eyed strangers. Sleek and content once more, we disentangled ourselves from the arms of tawny wenches and embarked. Up anchor,

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

up sail, with chanties whose echoes sent sea birds whirling above the steeps, and we stood out to sea. This time we were escorted. Guzan himself was our pilot, a big middle-aged man whose handsomeness was not much injured by the livid green tattoos his folk affected on face and body. Several of his sons spread their pallets on our decks, while a swarm of warriors paddled alongside.

Rovic summoned Etien the boatswain to him in his cabin. "You're a man of some wit," he said. "I give you charge of keeping our crew alert, weapons ready, however peaceful this may look."

"Why, master!" The scarred brown face sagged with near dismay. "Think you the natives plot a treachery?"

"Who can tell?" said Rovic. "Now, say naught to the crew. They've no skill in dissembling. Did greed or fear rise among 'em, the natives would sense as much, and grow uneasy—which would worsen the attitude of our own men, until none but God's Daughter could tell what'd happen. Only see to it, as casually as you're able, that our arms are ever close by and that our folk stay together."

Etien collected himself, bowed, and left the cabin. I made bold to ask what Rovic had in mind.

"Nothing, yet," said he. "However, I did hold in these fists a piece of clockwork such as the Grand Ban of Giair never imagined; and yarns were spun me of a Ship which flew down from heaven, bearing a god or a prophet. Guzan thinks I know more

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

than I do, and hopes we'll be a new, disturbing element in the balance of things, by which he may further his own ambitions. He did not take all those fighting men along by accident. As for me . . . I intend to learn more about this."

He sat a while at his table, staring at a sunbeam which sickled up and down the wainscot as the ship rocked. Finally: "Scripture tells us man dwelt beyond the stars before the Fall. The astrologues of the past generation or two have told us the planets are corporeal bodies like this earth. A traveler from Paradise—"

I left with my head in a roar.

We made an easy passage among scores of islands. After several days we raised the main one, Ulas-Erkila. It is about a hundred miles long, forty miles across at the widest, rising steep and green toward central mountains dominated by a volcanic cone. The Hisagazi worship two sorts of gods, watery and fiery, and believe this Mount Ulas houses the latter. When I saw that snow-peak afloat in the sky above emerald ridges, staining the blue with smoke, I could feel what the pagans did. The holiest act a man can perform among them is to cast himself into the burning crater of Ulas, and many an aged warrior is carried up the mountain that he may do so. Women are not allowed on the slopes.

Nikum, the royal seat, is situated at the head of a fjord like the village where we had been staying. But Nikum is rich and extensive, being about the size of Roann. Many houses are made from timber rather than thatch; there is also a massive basalt temple atop a cliff, overlooking the city, with orchards, jungle, and mountains at its back. So great are the tree trunks available to them for pilings, the Hisagazi have built here a regular set of docks like those at Lavre—instead of moorings and floats that can rise or fall with the tides, such as most harbors throughout the world are content with. We were offered a berth of honor at the central wharf, but Rovic made the excuse that our ship was awkward to handle and got us tied at the far end.

"In the middle, we'd have the watchtower straight above us," he muttered to me. "And they may not have discovered the bow here, but their javelin throwers are good. Also, we'd have an easy approach to our ship, plus a clutter of moored canoes between us and the bay mouth. Here, though, a few of us could hold the pier whilst the others ready for quick departure."

"But have we anything to fear, master?" I asked.

He gnawed his mustache. "I know not. Much depends on what they really believe about this god-ship of theirs . . . as well as what the truth is. But come all death and hell against us, we'll not return without that truth for Queen Odela."

Drums rolled and feathered spearmen leaped as our officers disembarked. A royal catwalk had been erected above highwater level. (Common townsfolk in this realm

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

swim from house to house when the tide laps their thresholds, or take a coracle if they have burdens to carry.) Across the graceful span of vines and canes lay the palace, which was a long building made from logs, the roof pillars carved into fantastic god-shapes.

Iskilip, Priest-Emperor of the Hisagazi, was an old and corpulent man. A soaring headdress of plumes, a feather robe, a wooden scepter topped with a human skull, his own facial tattoos, his motionlessness, all made him seem unhuman. He sat on a dais, under sweet-smelling torches. His sons sat crosslegged at his feet, his courtiers on either side. Down the long walls were ranged his guardsmen. They had not our custom of standing to attention; but they were big supple young men, with shields and corselets of scaly sea-monster leather, with flint axes and obsidian spears that could kill as easily as iron. Their heads were shaven, which made them look the fiercer.

Iskilip greeted as well, called for refreshment, bade us be seated on a bench not much lower than his dais. He asked many perceptive questions. Wide-ranging, the Hisagazi knew of islands far beyond their own chain. They could even point the direction and tell us roughly the distance of a many-castled country they named Yurakadak, though one of them had traveled that far himself. Judging by their third-hand description, what could this be but Giair, which the Wondish adventurer Hanas Tolasson had reached overland? It blazed in me that we were indeed rounding the world. Only after that glory had faded a little did I again heed the talk.

"As I told Guzan," Rovic was saying, "another thing which drew us hither was the tale that you were blessed with a Ship from heaven. And he showed me this was true."

A hissing went down the hall. The princes grew stiff, the courtiers blanked their countenances, even the guardsmen stirred and muttered. Remotely through the walls I heard the rumbling, nearing tide. When Iskilip spoke, through the mask of himself, his voice had gone whetted: "Have you forgotten that these things are not for the uninitiate to see, Guzan?"

"No, Holy One," said the duke. Sweat sprang forth among the devils on his face, but it was not the sweat of fear. "However, this captain knew. His people also . . . as nearly as I could learn . . . . he still has trouble speaking so I can understand . . . his people are initiate too. The claim seems reasonable, Holy One. Look at the marvels they brought. The hard, shining stone-which-is-not-stone, as in this long knife I was given, is that not like the stuff of which the Ship is built? The tubes which make distant things look close at hand, such as he has given you, Holy One, is this not akin to the far-seer the Messenger possesses?"

Iskilip leaned forward, toward Rovic. His scepter hand trembled so much that the pegged jaws of the skull clattered together. "Did the

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Star People themselves teach you to make all this?" he cried. "I never imagined . . . The Messenger never spoke of any others—"

Rovic held up both palms. "Not so fast, Holy One, I pray you," said he. "We are poorly versed in your tongue. I couldn't recognize a word just now."

This was his deceit. All his officers had been ordered to feign a knowledge of Hisagazi less than they really possessed. (We had improved our command of it by secret practicing with each other.) Thus he had an unimpeachable device for equivocation.

"Best we talk of this in private, Holy One," suggested Guzan, with a glance at the courtiers. They returned him a jealous glare.

Iskilip slouched in his gorgeous regalia. His words fell blunt enough, but in the weak tone of an old, uncertain man. "I know not. If these strangers are already initiate, certes we can show them what we have. But otherwise—if profane ears heard the Messenger's own tale—"

Guzan raised a dominator's hand. Bold and ambitious, long thwarted in his petty province, he had taken fire this day. "Holy One," he said, "why has the full story been withheld all these years? In part to keep the commoners obedient, aye. But also, did you and your councillors not fear that all the world might swarm hither, greedy for knowledge, if it knew, and we should then be overwhelmed? Well, if we let the blue-eyed men go home with curiosity unsatisfied, I think they are sure to return in strength. So we have naught to lose by revealing the truth to them. If they have never had a Messenger of their own, if they can be of no real use to us, time enough to kill them. But if they have indeed been visited like us, what might we and they not do together!"

This was spoken fast and softly, so that we Montalirians should not understand. And indeed our gentlemen failed to do so. I, having young ears, got the gist; and Rovic preserved such a fatuous smile of imcomprehension that I knew he was seizing every word.

So in the end they decided to take our leader—and my insignificant self, for no Hisagazian magnate goes anywhere quite unattended—up to the temple. Iskilip led the way in person, with Guzan and two brawny princes behind. A dozen spearmen brought up the rear. I thought Rovic's blade would be scant use if trouble came, but set my lips firmly together and made myself walk behind him. He looked as eager as a child on Thanksday Morning, teeth agleam in the pointed beard, a plumed bonnet slanted rakish over his brow. None would have thought him aware of any peril.

We left about sundown; in Tambur's hemisphere, folk make less distinction between day and night than our prople must. Having observed Siett and Balant in high tide position, I was not surprised that Nikum lay nearly drowned. And yet, as we

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

wound up the cliff trail toward the temple, methought I had never seen a view more alien.

Below us lay a sheet of water, on which the long grass roofs of the city appeared to float; the crowded docks, where our own ship's masts and spars raked above heathen figureheads; the fjord, winding between precipices toward its mouth, where the surf broke white and terrible on the skerries. The heights above us seemed altogether black, against a fire-colored sunset that filled nigh half the sky and bloodied the waters. Wan through those clouds I glimpsed the thick crescent of Tambur, banded in a heraldry no man could read. A basalt column chipped into the shape of a head loomed in outline athwart the planet. Right and left of the path grew sawtoothed grasses, summer-dry. The sky was pale at the zenith, dark purple in the east, where the first few stars had appeared. Tonight I found no comfort in the stars. We all walked silent. The bare native feet made no noise. My own shoes went *pad-pad* and the bells on Rovic's toes raised a tiny jingle.

The temple was a bold piece of work. Within a quadrangle of basalt walls guarded by tall stone heads lay several buildings of the same material. Only the fresh-cut fronds that roofed them were alive. With Iskilip to lead us, we brushed past acolytes and priests to a wooden cabin behind the sanctum. Two guardsmen stood watch at its door, but they knelt for Iskilip. The emperor rapped with his curious scepter.

My mouth was dry and my heart thunderous. I expected almost any being hideous or radiant to stand in the doorway as it was opened. Astonishing, then, to see just a man, and of no great stature. By lamplight within I discrened his room, clean, austere, but not uncomfortable; this could have been any Hisagazian dwelling. He himself wore a simple bast skirt. The legs beneath were bent and thin, old man's shanks. His body was also thin, but still erect, the white head proudly carried. In complexion he was darker than a Montalirian, lighter than a Hisagazian, with brown eyes and thin beard. His visage differed subtly, in nose and lips and slope of jaw, from any other race I had ever encountered. But he was human.

Naught else.

We entered the cabin, shutting out the spearmen. Iskilip doddered through a half-religious ceremony of introduction. I saw Guzan and the princes shift their stance, restless and unawed. Their class had long been party to this. Rovic's face was unreadable. He bowed with full courtliness to Val Nira, Messenger of Heaven, and explained our presence in a few words. But as he spoke, their eyes met and I saw him take the star man's measure.

"Aye, this is my home," said Val Nira. Habit spoke for him; he had given this account to so many young nobles that the edges were worn off it. As yet he had not observed our metallic instruments, or else had not

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

grasped their significance to him. "For . . . forty-three years, is that right, Iskilip? I have been treated as well as might be. If at times I was near screaming from loneliness, that is what an oracle must expect."

The emperor stirred, uneasy in his robe. "His demon left him," he explained. "Now he is simple human flesh. That's the real secret we keep. It was not ever thus. I remember when he first came. He prophesied immense things, and all the people wailed and went on their faces. But sithence his demon has gone back to the stars, and the once potent weapon he bore has equally been emptied of its force. The people would not believe this, however, so we still pretend otherwise, or there would be unrest among them."

"Affecting your own privileges," said Val Nira. His tone was tired and sardonic. "Iskilip was young then," he added to Rovic, "and the imperial succession was in doubt. I gave him my influence. He promised in return to do certain things for me."

"I tried, Messenger," said the monarch. "Ask all the sunken canoes and drowned men if I did not try. But the will of the gods was otherwise."

"Evidently." Val Nira shrugged. "These islands have few ores, Captain Rovic, and no person capable of recognizing those I required. It's too far to the mainland for Hisagazian canoes. But I don't deny you tried, Iskilip . . . then." He cocked an eyebrow back at us. "This is the first time foreigners have been taken so deeply into the imperial confidence, my friends. Are you certain you can get back out again, alive?"

"Why, why, why, they're our guests!" blustered Iskilip and Guzan, almost in each other's mouths.

"Besides," smiled Rovic, "I had most of the secret already. My own counrty has secrets of its own, to set against this. Yes, I think we might well do business, Holy One."

The emperor trembled. His voice cracked across. "Have you indeed a Messenger too?"

"What?" For a numbed moment Val Nira stared at us. Red and white pursued each other across his countenance. Then he sat down on a bench and began to weep.

"Well, not precisely." Rovic laid a hand on the shaking should, "I confess no heavenly vessel had docked at Montalir. But we've certain other secrets, belike equally valuable." Only I, who knew his moods somewhat, could sense the tautness in him. He locked eyes with Guzan and stared the duke down as a wild animal tamer does. And all the while, motherly gentle, he spoke with Val Nira. "I take it, friend, your Ship was wrecked on these shores, but could be repaired if you had certain materials?"

"Yes . . . yes . . . listen—" Stammering and gulping at the thought he might see his home again ere he died, Val Nira tried to explain.

The doctrinal implications of what

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

he said are so astounding, even dangerous, that I feel sure my lords would not wish me to repeat much. However, I do not believe they are false. If the stars are indeed suns like our own, each attended by planets like our own, this demolishes the crystal-sphere theory. But Froad, when he was told later, did not think that mattered to the true religion. Scripture has never said in so many words that Paradise lies directly above the birthplace of God's Daughter; this was merely assumed, during those centuries when the earth was believed to be flat. Why should Paradise not be those planets of other suns, where men dwell in magnificence, men who possess all the ancient arts and flit from star to star as casually as we might go from Lavre to West Alayn?

Val Nira believed our ancestors had been cast away on this world, several thousand years ago. They must have been fleeing the consequences of some crime or heresy, to come so far from any human domain. Somehow their ship was wrecked, the survivors went back to savagery, only by degrees have their descendants regained a little knowledge. I cannot see where this explanation contradicts the dogma of the Fall. Rather, it amplifies it. The Fall was not the portion of all mankind, but only of a few—our own tainted blood—while the others continued to dwell prosperous and content in the heavens.

Even today, our world lies far off the trade lanes of the Paradise folk. Very few of them nowadays have any interest in seeking new worlds. Val Nira, though, was such a one. He traveled at hazard for months until he chanced upon our earth. Then the curse seized him, too. Something went wrong. He descended upon Ulas-Erkila, and the Ship would fly no more.

"I know what the damage is," he said ardently. "I've not forgotten. How could I? No day has passed in all these years that I didn't recite to myself what must be done. A certain subtle engine in the Ship requires quicksilver." (He and Rovic must spend some time talking ere they deduced this must be what he meant by the word he used.) "When the engine failed, I landed so hard that its tanks burst. All the quicksilver, what I had in reserve as well as what I was employing, poured forth. So much, in that hot enclosed space, would have poisoned me. I fled outside, forgetting to close the doorway. The deck being canted, the quicksilver ran after me. By the time I had recovered from blind panic, a tropical rainstorm had carried off all the fluid metal. A series of unlikely accidents, yes, that's what's condemned me to a life's exile. It really would have made more sense to perish outright!"

He clutched Rovic's hand, staring up from his seat at the captain who stood over him. "Can you actually get quicksilver?" he begged. "I need no more than the volume of a man's head. Only that, and a few repairs easily made with tools in the Ship.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

When this cult grew up around me, I must needs release certain things I possessed, that each provincial temple might have a relic. But I took care never to give away anything important. Whatever I need is all there. A gallon of quicksilver, and—Oh, God, my wife may even be alive, on Terra!"

Guzan, at least, had begun to understand the situation. He gestured to the princes, who hefted their axes and stepped a little closer. The door was shut on the guard escort, but a shout would bring their spears into this cabin. Rovic looked from Val Nira to Guzan, whose face was grown ugly with tension. My captain laid hand on hilt. In no other way did he seem to feel any nearness of trouble.

"I take it, milord," he said lightly, "you're willing that the Heaven Ship be made to fly again."

Guzan was jarred. He had never expected this. "Why, of course," he exclaimed. "Why not?"

"Your tame god would depart you. What then becomes of your power in Hisagazia?"

"I . . . I'd not thought of that," Iskilip stuttered.

Val Nira's eyes shuttled among us, as if watching a game of paddleball. His thin body shook. "No," he whimpered. "You can't. You can't keep me!"

Guzan nodded. "In a few more years," he said, not unkindly, "you would depart in death's canoe anyhow. If meanwhile we held you against your will, you might not speak the right oracles for us. Nay, be at ease; we'll get your flowing stone." With a slitted glance at Rovic: "Who shall fetch it?"

"My own folk," said the knight. "Our ship can readily reach Giair, where there are civilized nations who surely have the quicksilver. We could return within a year, I think."

"Accompanied by a fleet of adventurers, to help you seize the sacred vessel?" asked Guzan bluntly. "Or . . . once out of our islands . . . you might not proceed to Yurakadak at all. You might continue the whole way home, and tell your Queen, and return with all the power she commands."

Rovic lounged against a roof post, like a big pouncecat at its ease in ruffles and hose and scarlet cape. His right hand continued to rest on his sword pommel. "Only Val Nira could make that Ship go, I suppose," he drawled. "Does it matter who aids him in making repairs? Surely you don't think either of our nations could conquer Paradise!"

"The Ship is very easy to operate," chattered Val Nira. "Anyone can fly it in air. I showed many nobles what levers to use. It's navigating among the stars which is more difficult. No nation on this world could even reach my people unaided—let alone fight them—but why should you think of fighting? I've told you a thousand times, Iskilip, the dwellers in the Milky Way are dangerous to none, helpful to all. They have so much wealth they're

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

hard put to find a use for most of it. Gladly would they spend large amounts to help all the peoples on this world become civilized again." With an anxious, half hysterical look at Rovic: "Fully civilized, I mean. We'll teach you our arts. We'll give you engines, automata, homunculi, that do all the toilsome work; and boats that fly through the air; and regular passenger service on those ships that ply between the stars—"

"These things you have promised for forty years," said Iskilip. "We've only your word."

"And, finally, a chance to confirm his word," I blurted.

Guzan said with calculated grimness: "Matters are not that simple, Holy One. I've watched these men from across the ocean for weeks, while they lived on Yarzik. Even on their best behavior, they're a fierce and greedy lot. I trust them no further than my eyes reach. This very night I see how they've befooled us. They know our language better than they ever admitted. And they misled us to believe they might have some inkling of a Messenger. If the Ship were indeed made to fly again, with *them in possession*, who knows what they might choose to do?"

Rovic's tone softened still further, "What do you propose, Guzan?"

"We can discuss that another time."

I saw knuckles tighten around stone axes. For a moment, only Val Nira's unsteady breathing was heard. Guzan stood heavy in the lamplight, rubbing his chin, the small black eyes

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

turned downward in thoughtfulness. At last he shook himself. "Perhaps," he said crisply, "a crew mainly Hisagazian could sail your ship, Rovic, and fetch the flowing stone. A few of your men could go along to instruct ours. The rest could remain here as hostages."

My captain made no reply. Val Nira groaned, "You don't understand! You're squabbling over nothing! When my people come here, there'll be no more war, no more oppression, they'll cure you of all such diseases. They'll show friendship to all and favor to none. I beg you—"

"Enough," said Iskilip. His own words fell ragged. "We shall sleep on all this. If anyone can sleep after so much strangeness."

Rovic looked past the emperor's plumes, into the face of Guzan. "Before we decide anything—" His fingers tightened on the sword hilt till the nails turned white. Some thought had sprung up within him. But he kept his tone even. "First I want to see that Ship. Can we go there tomorrow?"

Iskilip was the Holy One, but he stood huddled in his feather robe. Guzan nodded agreement.

We bade our goodnights and went forth under Tambur. The planet was waxing toward full; flooding the courtyard with cold luminance, but the hut was shadowed by the temple. It remained a black outline, with a narrow lamplight rectangle of doorway in the middle. There was etched the frail body of Val Nira, who had come from the stars. He watched us till we had gone out of sight.

On the way down the path, Guzan and Rovic bargained in curt words. The Ship lay two days' march inland, on the slopes of Mount Ulas. We would go in a joint party to inspect it, but a mere dozen Montalirians were to be allowed. Afterward we would debate our course of action.

Lanthorns glowed yellow at our caravel's poop. Refusing Iskilip's hospitality, Rovic and I returned thither for the night. A pikeman on guard at the gangway inquired what I had learned. "Ask me tomorrow," I said feebly. "My head's in too much of a whirl."

"Come into my cabin, lad, for a stoup ere we retire," the captain invited me.

God knows I needed wine. We entered the low little room, crowded with nautical instruments, with books, and with printed charts that looked quaint to me now I had seen a little of those spaces where the cartographer drew mermaids and windsprites. Rovic sat down behind his table, gestured me to a chair opposite, and poured from a carafe into two goblets of Quaynish crystal. Then I knew he had momentous thoughts in his head—far more than the problem of saving our lives.

We sipped a while, unspeaking. I heard the *lap-lap* of wavelets on our hull, the tramp of men on watch, the rustle of distant surf: otherwise nothing. At last Rovic leaned back, staring at the ruby wine on the table. I could not read his expression.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Well, lad," said he, "what do you think?"

"I know not what to think, master."

"You and Froad are a little prepared for this idea that the stars are other suns. You're educated. As for me, I've seen so much eldritch in my day that this seems quite believable. The rest of our people, though—"

"An irony that barbarians like Guzan should long have been familiar with the concept—having had the old man from the sky to preach it privily to their class for more than forty years—Is he indeed a prophet, master?"

"He denies it. He plays prophet because he must, but it's evident all the dukes and earls of this realm know it's a trick. Iskilip is senile, more than half converted to his own artificial creed. He was mumbling about prophecies Val Nira made long ago, true prophecies. Bah! Tricks of memory and wishfulness. Val Nira is as human and fallible as I am. We Montalirians are the same flesh as these Hisagazi, even if we have learned the use of metal before they did. Val Nira's people know more in turn than us; but they're still mortals, by Heaven. I *must* remember that they are."

"Guzan remembers."

"Bravo, lad!" Rovic's mouth bent upward, one-sidedly. "He's a clever one, and bold. When he came, he saw his chance to stop stagnating as the petty lord of an outlying island. He'll not let that chance slip without a fight. Like many a double-dealer before him, he accuses us of plotting *the very things he hopes to do.*"

"But what does he hope for?"

"My guess would be, he wants the Ship for himself. Val Nira said it was easy to fly. Navigation between the stars would be too difficult for anyone save him; nor could any man in his right mind hope to play pirate along the Milky Way. However . . . if the Ship stayed right here, on this earth, rising no higher than a mile above ground . . . the warlord who used it might conquer more widely than Lame Darveth himself."

I was aghast. "Do you mean Guzan would not even try to seek out Paradise?"

Rovic scowled so blackly at his wine that I saw he wanted aloneness. I stole off to my bunk in the poop.

The captain was up before dawn, readying our folk. Plainly he had reached some decision, and it was not pleasant. But once he set a course, he seldom left it. He was long in conference with Etien, who came out of the cabin looking frightened. As if to reassure himself, the boatswain ordered the men about all the more harshly.

Our allowed dozen were to be Rovic, Froad, myself, Etien, and eight crewmen. All were supplied with helmets and corselets, muskets and edged weapons. Since Guzan had told us there was a beaten path to the Ship, we assembled a supply cart on the dock. Etien supervised its lading. I was astonished to see that nearly all it carried, till the axles groaned, was barrels of gunpowder. "But we're not taking cannon!" I protested.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Skipper's orders," rapped Etien. He turned his back on me. After a glance at Rovic's face, no one ventured to ask him the reason. I remembered we would be going up a mountainside. A wagonful of powder, with lit fuse, set rolling down toward a hostile army, might win a battle. But did Rovic anticipate open conflict so soon?

Certes his orders to the men and officers remaining behind suggested as much. They were to stay aboard the *Golden Leaper,* holding her ready for instant fight or flight.

As the sun rose, we said our morning prayers to God's Daughter and marched down the docks. The wood banged hollow under our boots. A few thin mists drifted on the bay; Tambur's crescent hung wan above. Nikum Town was hushed as we passed through.

Guzan met us at the temple. A son of Iskilip was supposedly in charge, but the duke ignored that youth as much as we did. They had a hundred guardsmen with them, scaly-coated, shaven-headed, tattooed with storms and dragons. The early sunlight gleamed off obsidian spearheads. Our approach was watched in silence. But when we drew up before those disorderly ranks, Guzan trod forth. He was also y-clad in leather, and carried the sword Rovic had given him on Yarzik. The dew shimmered on his feather cloak. "What have you in that wagon?" he demanded.

"Supplies," Rovic answered.

"For four days?"

"Send home all but ten of your men," said Rovic coolly, "and I'll send back this cart."

Their eyes clashed, until Guzan turned and gave his orders. We started off, a few Montalirians surrounded by pagan warriors. The jungle lay ahead of us, a deep and burning green, rising halfway up the slope of Ulas. Then the mountain became naked black, up to the snow that edged its smoking crater.

Val Nira walked between Rovic and Guzan. Strange, I thought, that the instrument of God's will for us was so shriveled. He ought to have walked tall and haughty, with a star on his brow.

During the day, at night when we made camp, and again the next day, Rovic and Froad questioned him eagerly about his home. Of course, all their talk was in fragments. Nor did I hear everything, since I must take my turn at pulling our wagon along that narrow, upward, damnable trail. The Hisagazi have no draft animals, therefore they make very little use of the wheel and have no proper roads. But what I did hear kept me long awake.

Ah, greater marvels than the poets have imagined for Elf Land! Entire cities built in a single tower half a mile high. The sky made to glow so that there is no true darkness after sunset. Food not grown in the earth, but manufactured in alchemical elaboratories. The lowest peasant owning a score of machines which serve him more subtly and humbly than might a thousand slaves—owning an aerial

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

carriage which can fly him around his world in less than a day—owning a crystal window on which theatrical images appear, to beguile his abundant leisure. Argosies between suns, stuffed with the wealth of a thousand planets; yet every ship unarmed and unescorted, for there are no pirates and this realm has long ago come to such good terms with the other star-faring nations that war has also ceased. (These other countries, it seems, are more akin to the supernatural than Val Nira's, in that the races composing them are not human, though able to speak and reason.) In this happy land there is little crime. When it does occur, the criminal is soon captured by the arts of the provost corps; yet he is not hanged, nor even transported overseas. Instead, his mind is cured of the wish to violate any law. He returns home to live as an especially honored citizen, since all know he is now completely trustworthy. As for the government—but, here I lost the thread of discourse. I believe it is in form a republic, but in practice a devoted fellowship of men, chosen by examination, who see to the welfare of everyone else.

Surely, I thought, this was Paradise!

Our sailors listened with mouths agape. Rovic's mien was reserved, but he gnawed his mustaches incessantly. Guzan, to whom this was an old tale, grew rough of manner. Plain to see, he disliked our intimacy with Val Nira, and the ease wherewith we grasped ideas that were spoken.

But then, we came of a nation which has long encouraged natural philosophy and improvement of all mechanic arts. I myself, in my short lifetime, had witnessed the replacement of the waterwheel in regions where there are few streams, by the modern form of windmill. The pendulum clock was invented the year before I was born. I had read many romances about the flying machines which no few men have tried to devise. Living at such a dizzy pace of progress, we Montalirians were well prepared to entertain still vaster concepts.

At night, sitting up with Froad and Etien around a campfire, I spoke somewhat of this to the savant. "Ah," he crooned, "today Truth stood unveiled before me. Did you hear what the starman said? The three laws of planetary motion about a sun, and the one great law of attraction which explains them? Dear saints, that law can be put in a single short sentence, and yet the development will keep mathematicians busy for three hundred years!"

He stared past the flames, and the other fires around which the heathen men slept, and the jungle gloom, and the angry volcanic glow in heaven. I started to query him. "Leave be, lad," grunted Etien. "Can ye nay tell when a man's in love?"

I shifted my position, a little closer to the boatswain's stolid, comforting bulk. "What do you think of all this?" I asked, softly, for the jungle whispered and croaked on every side.

"Me, I stopped thinking a while

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

back," he said. "After yon day on the quarterdeck, when the skipper jested us into sailing wi' him though we went off the world's edge an' tumbled down in foam amongst the nether stars . . . well, I'm but a poor sailor man, an' my one chance o' regaining home is to follow the skipper."

"Even beyond the sky?"

"Less hazard to that, maybe, than sailing on around the world. The little man swore his vessel was safe, an' that there're no storms between the suns."

"Can you trust his word?"

"Oh, aye. Even a knocked-about old palomer like me has seen enough o' men to ken when a one's too timid an' eagersome to stand by a lie. I fear not the folk in Paradise, nor does the skipper. Except in some way—" Etien rubbed his bearded jaw, scowling. "In some way I can nay wholly grasp, they affright Rovic. He fears nay they'll come hither wi' torch an' sword; but there's somewhat else about 'em that frets him."

I felt the ground shudder, ever so faintly. Ulas had cleared his throat. "It does seem we'd be daring God's anger—"

"That's nay what gnaws on the skipper's mind. He was never an over-pious man." Etien scratched himself, yawned, and climbed to his feet. "Glad I am to be nay the skipper. Let him think over what's best to do. Time ye an' me was asleep."

But I slept little that night.

Rovic, I think, rested well. Yet as the next day wore on, I could see haggardness on him. I wondered why. Did he think the Hisagazi would turn on us? If so, why had he come at all? As the slope steepened, the wagon grew so toilsome to push and drag that my fears died for lack of breath.

Yet when we came upon the Ship, toward evening, I forgot my weariness. And after one amazed volley of oaths, our mariners rested silent on their pikes. The Hisagazi, never talkative, crouched low in token of awe. Only Guzan remained erect among them. I glimpsed his expression as he stared at the marvel. It was a look of lust.

Wild was that place. We had gone above timberline, so the land was a green sea below us, edged with silvery ocean. Here we stood among tumbled black boulders, with cinders and spongy tufa underfoot. The mountain rose in steeps and scarps and ravines, up to the snows and the smoke, which rose another mile into a pale chilly sky. And here stood the Ship.

And the Ship was beauty.

I remember. In length—height, rather, since it stood on its tail—it was about equal to our own caravel, in form not unlike a lance head, in color a shining white untarnished after forty years. That was all. But words are paltry, my lord. What can they show of clean soaring curves, of iridescence on burnished metal, of a thing which was proud and lovely and in its very shape aquiver to be off? How can I conjure back the glamor which hazed that Ship whose keel had cloven starlight?

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

We stood there a long time. My vision blurred. I wiped my eyes, angry to be seen so affected, until I noticed one tear glisten in Rovic's red beard. But the captain's visage was quite blank. When he spoke, he said merely, in a flat voice, "Come, let's make camp."

The Hisagazian guardsmen dared approach no closer than these several hundred yards, to so potent an idol as the Ship had become. Our own mariners were glad enough to maintain the same distance. But after dark, when all else was in order, Val Nira led Rovic, Froad, Guzan, and myself to the vessel.

As we approached, a double door in the side swung noiselessly open and a metal gangplank descended therefrom. Glowing in Tambur's light, and in the dull clotted red reflected off the smoke clouds, the Ship was already as strange as I could endure. When it thus opened itself to me, as if a ghost stood guard, I whimpered and fled. The cinders crunched beneath my boots; I caught a whiff of sulfurous air.

But at the edge of camp I rallied myself enough to look again. The dark ground blotted all light, so that the Ship appeared alone with its grandeur. Presently I went back.

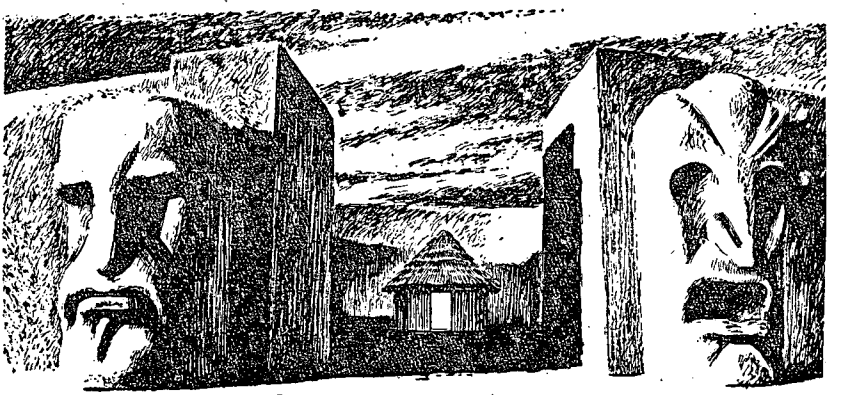
The interior was lit by luminous panels, cool to the touch. Val Nira explained that the great engine which drove it—as if the troll of folklore were put on a treadmill—was intact, and would furnish power at the flick of a lever. As nearly as I could understand what he said, this was done by changing the metallic part of ordinary salt into light . . . so I do not understand after all. The quicksilver was required for a part of the controls, which channeled power from the engine into another mechanism that hurtled the Ship skyward. We inspected the broken container. Enormous indeed had been the impact of landing, to twist and bend that thick alloy so. And yet Val Nira had been shielded by invisible forces, and the rest of the Ship had not suffered important damage. He fetched some tools, which flamed and hummed and whirled, and demonstrated a few repair operations on the broken part. Obviously he would have no trouble completing the work —and then he need only pour in a gallon of quicksilver, to bring his vessel alive again.

Much else did he show us that night. I shall say naught of this, for I cannot even remember such strangeness very clearly, let alone find words. Suffice it that Rovic, Froad, and Zhean spent a few hours in Elf Hill.

So, too, did Guzan, Though he had been taken here once before, as part of his initiation, he had never been shown this much erenow. Watching him, however, I saw less marveling in him than greed.

No doubt Rovic observed the same. There was little which Rovic did not observe. When we departed the Ship, his silence was not stunned like Froad's or my own. At the time, I thought in a vague fashion that he fretted over the trouble Guzan was

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



certain to make. Now, looking back, I believe his mood was sadness.

Sure it is that long after we others were in our bedrolls, he stood alone, looking at the planetlit Ship.

Early in a cold dawn, Etien shook me awake. "Up, lad, we've work to do. Load yere pistols an' belt on yere dirk."

"What? What's to happen?" I fumbled with a hoarfrosted blanket. Last night seemed a dream.

"The skipper's nay said, but plainly he awaits a fight. Report to the wagon an' help us move into yon flying tower." Etien's thick form heel-squatted a moment longer beside me. Then, slowly: "Methinks Guzan has some idea o' murdering us all, here on the mountain. One officer an' a few crewmen can be made to sail the *Golden Leaper* for him, to Giair an' back. The rest o' us would be less trouble to him wi' our weasands slit."

I crawled forth, teeth clattering in my head. After arming myself, I snatched some food from the common store. The Hisagazi on the march carry dried fish and a sort of bread made from a powdered weed. Only the saints knew when I'd next get a chance to eat. I was the last to join Rovic at the cart. The natives were drifting sullenly toward us, unsure what we intended.

"Let's go, lads," said Rovic. He gave his orders. Four men started manhandling the wagon across the rocky trail toward the Ship, where this gleamed among mists. We others stood by, weapons ready. Almost at once Guzan hastened toward us, with Val Nira toiling in his wake.

Anger darkened his countenance. "What are you doing?" he barked.

Rovic gave him a calm stare. "Why, milord, as we may be here for some time, inspecting the wonders aboard the Ship—"

"What?" interrupted Guzan. "What do you mean? Have you not seen enough for one visit? We must get home again, and prepare to sail after the flowing stone."

"Go if you wish," said Rovic. "I

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

choose to linger. And since you don't trust me, I reciprocate the feeling. My folk will stay in the Ship, which can be defended if necessary."

Guzan stormed and raged, but Rovic ignored him. Our men continued hauling the cart over the uneven ground. Guzan signaled his spearmen, who approached in a disordered but alert mass. Etien spoke a command. We fell into line. Pikes slanted forward, muskets took aim.

Guzan stepped back. We had demonstrated firearms for him at his own home island. Doubtless he could overwhelm us with sheer numbers, were he determined enough, but the cost would be heavy. "No reason to fight, is there?" purred Rovic. "I am only taking a sensible precaution. The Ship is a most valuable prize. It could bring Paradise for all . . . or dominion over this earth for one. There are those who'd prefer the latter. I've not accused you of being among them. However, in prudence I'd liefer keep the Ship for my hostage and my fortress, as long as it pleases me to remain here."

I think then I was convinced of Guzan's real intentions, not as a surmise of ours but as plain fact. Had he truly wished to attain the stars, his one concern would have been to keep the Ship safe. He would not have reached out, snatched little Val Nira in his powerful hands, and dragged the starman backward like a shield against our fire. Not that his intent matters, save to my own conscience. Wrath distorted his patterned visage. He screamed at us, "Then I'll keep a hostage too! And much good may your shelter do you!"

The Hisagazi milled about, muttering, hefting their spears and axes, but not prepared to follow us. We grunted our way across the black mountainside. The sun strengthened. Froad twisted his beard. "Dear me, master captain," he said, "think you they'll lay siege to us?"

"I'd not advise anyone to venture forth alone," said Rovic dryly.

"But without Val Nira to explain things, what use for us to stay at the Ship? Best we go back. I've mathematic texts to consult—my head's aspin with the law that binds the turning planets—I must ask the man from Paradise what he knows of—"

Rovic interrupted with a gruff order to three men, that they help lift a wheel wedged between two stones. He was in a savage temper. I confess his action seemed mad to me. If Guzan intended treachery, we had gained little by immobilizing ourselves in the Ship, where he could starve us. Better to let him attack in the open, where we would have a chance of fighting our way through. On the other hand, if Guzan did not plan to fall on us in the jungle—or any other time—then this was senseless provocation on our part. But I dared not question.

When we had brought our wagon up to the Ship, its gangplank again descended for us. The sailors started and cursed. Rovic forced himself out of his own bitterness, to speak soothing words. "Easy, lads. I've been

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

aboard already, ye ken. Naught harmful within. Now we must tote our powder thither, an' stow it as I've planned."

Being slight of frame, I was not set to carrying the heavy casks, but put at the foot of the gangplank to watch the Hisagazi. We were too far away to distinguish words, but I saw how Guzan stood up on a boulder and harangued them. They shook their weapons at us and whooped. But they did not venture to attack. I wondered wretchedly what this was all about. If Rovic had foreseen us besieged, that would explain why he brought so much powder along . . . no, it would not, for there was more than a dozen men could shoot off in weeks of musketry, even had we had enough lead along . . . and we had almost no food! I looked past the poisonous volcano clouds, to Tambur where storms raged that could engulf all our earth, and wondered what demons lurked here to possess men.

I sprang to alertness at an indignant shout from within. Froad! Almost, I ran up the gangway, then remembered my duty. I heard Rovic roar him down and order the crewfolk to carry on. Froad and Rovic must have gone alone into the pilot's compartment and talked for an hour or more. When the old man emerged, he protested no longer. But as he walked down the gangway, he wept.

Rovic followed, grimmer of countenance than I had ever seen a man erenow. The sailors filed after, some looking appalled, some relieved, but chiefly watching the Hisagazian camp. They were simple mariners; the Ship was little to them save an alien and disquieting thing. Last came Etien, walking backward down the metal plank as he uncoiled a long string.

"Form square!" barked Rovic. The men snapped into position. "Best get within, Zhean and Froad," said the captain. "You can better carry extra ammunition than fight." He placed himself in the van.

I tugged Froad's sleeve. "Please, I beg you, master, what's happening?" But he sobbed too much to answer.

Etien crouched with flint and steel in his hands. He heard me—for otherwise we were all deathly silent—and said in a hard voice: "We placed casks o' powder throughout this hull, lad, wi' powder trains to join 'em. Here's the fuse to the whole."

I could not speak, could not even think, so monstrous was this. As if from immensely far away, I heard the click of stone on steel in Etien's fingers, heard him blow on the spark and add: "A good idea, methinks. I said t'other eventide, I'd follow the skipper wi'out fear o' God's curse—but better 'tis not to tempt Him overmuch."

"Forward march!" Rovic's sword blazed clear of the scabbard.

Our feet scrunched loud and horrible on the mountain as we quickstepped away. I did not look back. I could not. I was still fumbling in a nightmare. Since Guzan would have moved to intercept us anyhow, we proceeded straight toward his band. He stepped forward as we halted at

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

the camp's edge. Val Nira slunk shivering after him. I heard the words dimly:

"Well, Rovic, what now? Are you ready to go home?"

"Yes," said the captain. His voice was dull. "All the way home."

Guzan squinted in rising suspiciousness. "Why did you abandon your wagon? What did you leave behind?"

"Supplies. Come, let's march."

Val Nira stared at the cruel shapes of our pikes. He must wet his lips a few times ere he could quaver, "What are you talking about? There's no reason to leave food there. It would spoil in all the time until . . . until—" He faltered as he looked into Rovic's eyes. The blood drained from him.

"What have you done?" he whispered.

Suddenly Rovic's free hand went up, to cover his face. "What I must," he said thickly. "Daughter of God, forgive me."

The starman regarded us an instant more. Then he turned and ran. Past the astonished warriors he burst, out onto the cindery slope, toward his Ship.

"Come back!" bellowed Rovic. "You fool you'll never—"

He swallowed hard. As he looked after that small, stumbling, lonely shape, hurrying across a fire mountain toward the Beautiful One, the sword sank in his grasp. "Perhaps it's best," he said, like a benediction.

Guzan raised his own sword. In scaly coat and blowing feathers, he was a figure as impressive as steel-clad Rovic. "Tell me what you've done," he snarled, "or I'll kill you this moment!"

He paid our muskets no heed. He, too, had had dreams.

He, too, saw them end, when the Ship exploded.

Even that adamantine hull could not withstand a wagonload of carefully placed gunpowder, set off at one time. There came a crash that knocked me to my knees, and the hull cracked open. White-hot chunks of metal screamed across the slopes. I saw one of them strike a boulder and split it in twain. Val Nira vanished, destroyed too quickly to have seen what happened; so in the ultimate, God was merciful to him. Through the flames and smokes and the doomsday noise which followed, I saw the Ship fall. It rolled down the slope, strewing its own mangled guts behind. Then the mountainside grumbled and slid in pursuit, and buried it, and dust hid the sky.

More than this, I have no heart to remember.

The Hisagazi shrieked and fled. They must have thought all hell come to earth. Guzan stood his ground. As the dust enveloped us, hiding the grave of the Ship and the white volcano crater, turning the sun red, he sprang at Rovic. A musketeer raised his weapon. Etien slapped it down. We stood and watched those two men fight, up and over the shaken cinder land, and knew in our private darkness that this was their right.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Sparks flew where the blades clamored together. At last Rovic's skill prevailed. He took Guzan in the throat.

We gave Guzan decent burial and went down through the jungle.

That night the guardsmen rallied their courage enough to attack us. We were aided by our muskets, but must chiefly use sword and pike. We hewed our way through them because we had no other place to go than the sea.

They gave up, but carried word ahead of us. When we reached Nikum, all the forces Iskilip could raise were besieging the *Golden Leaper* and waiting to oppose Rovic's entry. We formed a square again, and no matter how many thousands they had, only a score or so could reach us at any time. Nonetheless, we left six good men in the crimsoned mud of those streets. When our people on the caravel realized Rovic was coming back, they bombarded the town. This ignited the thatch roofs and distracted the enemy enough that a sortie from the ship was able to effect a juncture with us. We chopped our way to the pier, got aboard, and manned the capstan.

Outraged and very brave, the Hisagazi paddled their canoes up to our hull, where our cannon could not be brought to bear. They stood on each other's shoulders to reach our rail. One band forced itself aboard, and the fight was fierce which cleared them from the decks. That was when I got the shattered collarbone which plagues me to this day.

But in the end, we came out of the fjord. A fresh east wind was blowing. With all sail aloft, we outran the foe. We counted our dead, bound our wounds, and slept.

Next dawning, awakened by the pain of my shoulder and the worse pain within, I mounted the quarterdeck. The sky was overcast. The wind had stiffened; the sea ran cold and green, whitecaps out to a cloud-gray horizon. Timbers groaned and rigging skirled. I stood an hour facing aft, into the chill wind that numbs pain.

When I heard boots behind me, I did not turn around. I knew they were Rovic's. He stood beside me a long while, bareheaded. I noticed that he was starting to turn gray.

Finally, not yet regarding me, still squinting into the air that lashed tears from our eyes, he said: "I had a chance to talk Froad over, that day. He was grieved, but owned I was right. Has he spoken to you about it?"

"No," I said.

"None of us are ever likely to speak of it much," said Rovic.

After another time: "I was not afraid Guzan or anyone else would seize the Ship and try to turn conqueror. We men of Montalir should well be able to deal with any such rogues. Nor was I afraid of the Paradise dwellers. That poor little man could only have been telling truth. They would never have harmed us . . . willingly. They would have brought precious gifts, and taught us their own esoteric arts, and let us visit all their stars."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Then why?" I got out.

"Someday Froad's successors will solve the riddles of the universe," he said. "Someday our descendants will build their own Ship, and go forth to whatever destiny they wish."

Spume blew up and around us, until our hair was wet. I tasted the salt on my lips.

"Meanwhile," said Rovic, "we'll sail the seas of this earth, and walk its mountains, and chart and subdue and come to understand it. Do you see, Zhean? That is what the Ship would have taken from us."

Then I was also made able to weep. He laid his hand on my uninjured shoulder and stood with me while the *Golden Leaper,* all sail set, proceeded westward.

THE END

IN TIMES TO COME

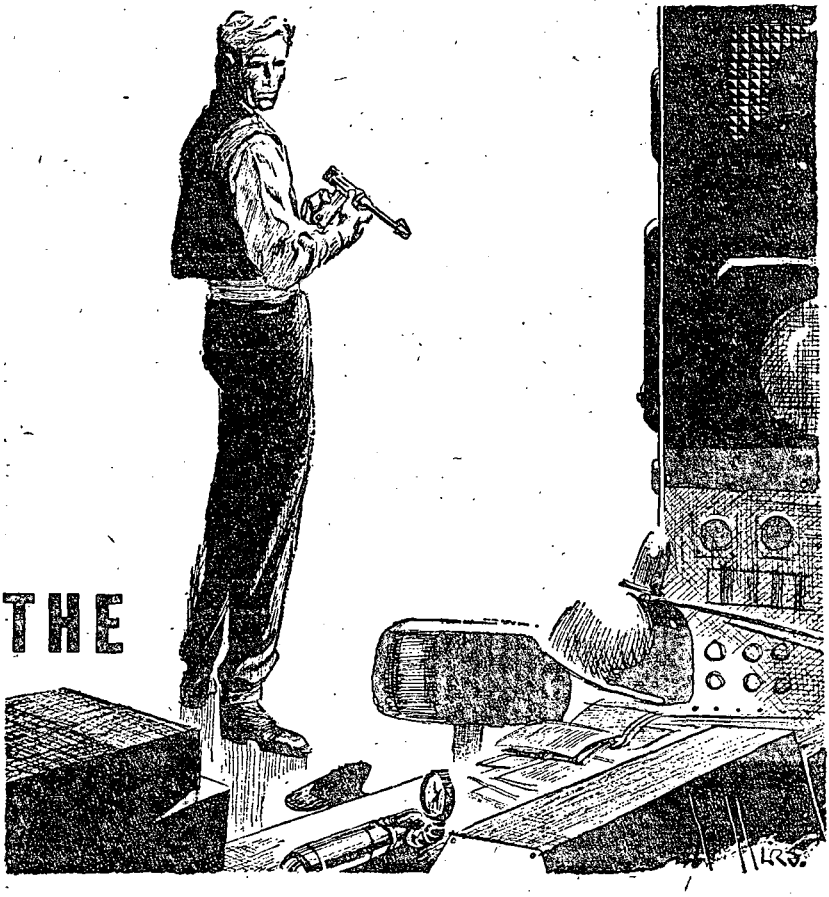
The cover next month, goes with Randall Garrett's "The Highest Treason." Here on our little limited Earth, there is a limit to the degree of treason possible; just let a situation develop in which a higher type of treason is possible . . . and Finnagle's Law applies. ". . . If something *can* happen—it will." Once there was no possibility of treason against the tribe; until tribes were invented, only family treason was possible. Until nations were invented, tribe, or clan treason was the highest. Once let Man encounter alien races in space . . . and a new kind of treason becomes possible.

That's how it looks, anyway. That is, *seems* as though treason against the race is possible only when there's another race for the traitor to turn to. But in fact, it's like a locked-room murder mystery. If Bill Blow's bullet-riddled corpse is found in a room completely sealed, and from which no one could escape—who murdered Bill Blow? That question, like "The Highest Treason," has a perfectly simple, straight-forward and logical answer, implicit in the given data. It is, indeed, "murder most foul!"

Also with us next time, is another of those lovely Leonard Lockhard patent-law shemozzles—this time discussing a real case, and a real inventor who can't get a patent. One Arthur C. Clarke . . . .

The Editor.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



THE K-FACTOR

By HARRY HARRISON

Speed never hurt anybody—it's the sudden stop at the end. It's not how much change that signals danger, but how fast it's changing . . .

Illustrated by Summers

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

E'RE losing a planet, Neel. I'm afraid that I can't . . . understand it."

The bald and wrinkled head wobbled a bit on the thin neck, and his eyes were moist. Abravanel was a very old man. Looking at him, Neel realized for the first time just how old and close to death he was. It was a profoundly shocking thought.

"Pardon me, sir," Neel broke in, "but is it possible? To lose a planet, I mean. If the readings are done correctly, and the k-factor equations worked to the tenth decimal place, then it's really just a matter of adjustment, making the indicated corrections. After all, Societics is an exact science—"

"Exact? *Exact!* Of course it's not! Have I taught you so little that you dare say that to me?" Anger animated the old man, driving the shadow of death back a step or two.

Neel hesitated, feeling his hands quiver ever so slightly, groping for the right words. Societics was his faith, and his teacher, Abravanel, its only prophet. This man before him, carefully preserved by the age-retarding drugs, was unique in the galaxy. A living anachronism, a refugee from the history books. Abravanel had singlehandedly worked out the equations, spelled out his science of Societics. Then he had trained seven generations of students in its fundamentals. Hearing the article of his faith defamed by its creator produced a negative feedback loop in Neel so strong his hands vibrated in tune with it. It took a jarring effort to crack out of the cycle.

"The laws that control Societics, as postulated by . . . you, are as exact as any others in the unified-field theory universe."

"No they're not. And, if any man I taught believes that nonsense, I'm retiring tomorrow and dropping dead the day after. My science—and it is really not logical to call it a science—is based on observation, experimentation, control groups and corrected observations. And though we have made observations in the millions, we are dealing in units in the billions, and the interactions of these units are multiples of that. And let us never forget that our units are people who, when they operate as individuals, do so in a completely different manner. So you cannot truthfully call my theories exact. They fit the facts well enough and produce results in practice, that has been empirically proven. So far. Some day, I am sure, we will run across a culture that doesn't fit my rules. At that time the rules will have to be revised. We may have that situation now on Himmel. There's trouble cooking there."

"They have always had a high activity count, sir," Neel put in hopefully.

"High yes, but *always* negative. Until now. Now it is slightly positive and nothing we can do seems to change it. That's why I've called you in. I want you to run a new basic survey, ignoring the old one still in operation, to re-examine the check

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

points on our graphs. The trouble may lie there."

Neel thought before he answered, picking his words carefully. "Wouldn't that be a little . . . unethical, sir? After all Hengly, who is operator there now, is a friend of mine. Going behind his back, you know."

"I know nothing of the sort." Abravanel snorted. "We are not playing for poker chips, or seeing who can get a paper published first. Have you forgotten what Societics is?"

Neel answered by rote. "The applied study of the interaction of individuals in a culture, the interaction of the group generated by these individuals, the equations derived therefrom, and the application of these equations to control one or more factors of this same culture."

"And what is the one factor that we have tried to control in order to make all the other factors possible of existence?"

"War." Neel said, in a very small voice.

"Very good then, there is no doubt what it is we are talking about. You are going to land quietly on Himmel, do a survey as quickly as possible and transmit the data back here. There is no cause to think of it as sneaking behind Hengly's back, but as doing something to help him set the matter right. Is that understood?"

"Yes, sir," Neel said firmly this time, straightening his back and letting his right hand rest reassuringly on the computer slung from his belt.

"Excellent. Then it is now time to meet your assistant." Abravanel touched a button on his desk.

It was an unexpected development and Neel waited with interest as the door opened. But he turned away abruptly, his eyes slitted and his face white with anger. Abravanel introduced them.

"Neel Sidorak, this is—"

"Costa. I know him. He was in my class for six months." There wasn't the slightest touch of friendliness in Neel's voice now. Abravanel either ignored it or didn't hear it. He went on as if the two cold, distant young men were the best of friends.

"Classmates. Very good—then there is no need to make introductions. Though it might be best to make clear your separate areas of control. This is your project Neel, and Adao Costa will be your assistant, following your orders and doing whatever he can to help. You know he isn't a graduate Societist, but he has done a lot of field work for us and can help you greatly in that. And, of course, he will be acting as an observer for the UN, and making his own reports in this connection."

Neel's anger was hot and apparent. "So he's a UN observer now. I wonder if he still holds his old job at the same time. I think it only fair, sir, that you know. He works for Interpol."

Abravanel's ancient and weary eyes looked at both men, and he sighed. "Wait outside Costa," he said, "Neel will be with you in a minute."

Costa left without a word and

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Abravanel waved Neel back to his chair. "Listen to me now," he said, "and stop playing tunes on that infernal buzzer." Neel snapped his hand away from the belt computer, as if it had suddenly grown hot. A hesitant finger reached out to clear the figures he had nervously been setting up, then thought better of it. Abravanel sucked life into his ancient pipe and squinted at the younger man.

"Listen," he said. "You have led a very sheltered life here at the university, and that is probably my fault. No, don't look angry, I don't mean about girls. In that matter undergraduates have been the same for centuries. I'm talking about people in groups, individuals, politics, and all the complicated mess that makes up human life. This has been your area of study and the program is carefully planned so you can study it secondhand. The important thing is to develop the abstract viewpoint, since any attempt to prejudge results can only mean disaster. And it has been proved many times that a man with a certain interest will make many unwitting errors to shape an observation or experiment in favor of his interest. No, we could have none of that here.

"We are following the proper study of mankind and we must do that by keeping personally on the outside, to preserve our perspective. When you understand that, you understand many small things about the university. Why we give only resident student scholarships at a young age, and why the out-of-the-way location here in the Dolomites. You will also see the reason why the campus bookstore stocks all of the books published, but never has an adequate supply of newspapers. The agreed policy has been to see that you all mature with the long view. Then—hopefully—you will be immune to short-term political interests after you leave.

"This policy has worked well in turning out men with the correct attitude towards their work. It has also turned out a fair number of self-centered, egocentric horrors."

Neel flushed. "Do you mean that I—"

"No, I don't mean you. If I did, I would say so. Your worst fault—if you can call it a fault, since it is the very thing we have been trying to bring about—is that you have a very provincial attitude towards the universe. Now is the time to re-examine some of those ideas. Firstly, what do you think the attitude of the UN is towards Societics?"

There was no easy answer, Neel could see traps ready for anything he said. His words were hesitant. "I can't say I've really ever thought about it. I imagine the UN would be in favor of it, since we make their job of world government that much easier—"

"No such thing," Abravanel said, tempering the sharpness of his words with a smile. "To put it in the simplest language, they hate our guts. They wish I had never formulated Societics, and at the same time they

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

are very glad I did. They are in the position of the man who caught the tiger by the tail. The man enjoys watching the tiger eat all of his enemies, but as each one is consumed his worry grows greater. What will happen when the last one is gone? Will the tiger then turn and eat him?

"Well—we are the UN's tiger. Societics came along just at the time it was sorely needed. Earth had settled a number of planets, and governed them. First as outposts, then as colonies. The most advanced planets very quickly outgrew the colony stage and flexed their independent muscles. The UN had no particular desire to rule an empire, but at the same time they had to insure Earth's safety. I imagine they were considering all sorts of schemes—including outright military control—when they came to me.

"Even in its early, crude form, Societics provided a stopgap that would give them some breathing time. They saw to it that my work was well endowed and aided me—unofficially of course—in setting up the first control experiments on different planets. We had results, some very good, and the others not so bad that the local police couldn't get things back under control after a while. I was, of course, happy to perfect my theories in practice. After a hundred years I had all the rough spots evened down and we were in business. The UN has never come up with a workable alternative plan, so they have settled down to the uncomfortable business of holding the tiger's tail. They worry and spend vast sums of money keeping an eye on our work."

"But *why*?" Neel broke in.

"Why?" Abravanel gave a quick smile. "Thank you for fine character rating. I imagine it is inconceivable to you that I might want to be Emperor of the Universe. I could be, you know. The same forces that hold the lids on the planets could just as easily blow them off."

Neel was speechless at the awful enormity of the thought. Abravanel rose from behind his desk with an effort, and shambled over to lay a thin and feather-light arm on the younger man's shoulders. "Those are the facts of life my boy. And since we cannot escape them, we must live with them. Costa is just a man doing his duty. So try and put up with him. For my sake if not for your own."

"Of course," Neel agreed quickly. "The whole thing takes a bit of getting used to, but I think I can manage. We'll do as good a job on Himmel as it is possible to do. Don't worry about me, sir."

Costa was waiting in the next room, puffing quietly on a long cigarette. They left together, walking down the hall in silence. Neel glanced sideways at the wiry, dark-skinned Brazilian and wondered what he could say to smooth things out. He still had his reservations about Costa, but he'd keep them to himself now. Abravanel had ordered peace between them, and what the old man said was the law.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

It was Costa who spoke first. "Can you brief me on Himmel—what we'll find there, and be expected to do?"

"Run the basic survey first, of course," Neel told him. "Chances are that that will be enough to straighten things out. Since the completion last year of the refining equations of Debir's Postulate, all sigma-110 and alpha-142 graph points are suspect—"

"Just stop there please, and run the flag back down the pole." Costa interrupted. "I had a six-months survey of Societics seven years ago, to give me a general idea of the field. I've worked with survey teams since then, but I have only the vaguest idea of the application of the information we got. Could you cover the ground again—only a bit slower?"

Neel controlled his anger successfully and started again, in his best classroom manner.

"Well, I'm sure you realize that a good survey is half the problem. It must be impartial and exact. If it is accurately done, application of the k-factor equations is almost mechanical."

"You've lost me again. Everyone always talks about the k-factor, but no one has ever explained just what it is."

Neel was warming to his topic now. "It's a term borrowed from nucleonics, and best understood in that context. Look, you know how an atomic pile works—essentially just like an atomic bomb. The difference is just a matter of degree and control. In both of them you have neutrons tearing around, some of them hitting nuclei and starting new neutrons going. These in turn hit and start others. This goes on faster and faster and *bam,* a few milliseconds later you have an atomic bomb. This is what happens if you don't attempt to control the reaction.

"However, if you have something like heavy water or graphite that will slow down neutrons and an absorber like cadmium, you can alter the speed of the reaction. Too much damping material will absorb too many neutrons and the reaction will stop. Not enough and the reaction will build up to an explosion. Neither of these extremes is wanted in an atomic pile. What is needed is a happy balance where you are soaking up just as many neutrons as are being generated all the time. This will give you a constant temperature inside the reactor. The net neutron reproduction constant is then 1. This balance of neutron generation and absorption is the k-factor of the reactor. Ideally 1.0000000.

"That's the ideal, though, the impossible to attain in a dynamic system like a reactor. All you need is a few more neutrons around, giving you a k-factor of 1.00000001 and you are headed for trouble. Each extra neutron produces two and your production rate soars geometrically towards bang. On the other hand, a k-factor of 0.999999999 is just as bad. Your reaction is spiraling down in the other direction. To control a pile you watch your k-factor and make constant adjustments."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"All this I follow," Costa said, "but where's the connection with Societics?"

"We'll get to that—just as soon as you realize and admit that a minute difference of degree can produce a marked difference of kind. You might say that a single, impossibly tiny, neutron is the difference between an atom bomb and a slowly cooling pile of inert uranium isotopes. Does that make sense?"

"I'm staggering, but still with you."

"Good. Then try to go along with the analogy that a human society is like an atomic pile. At one extreme you willl have a dying, decadent culture—the remains of a highly mechanized society—living off its capital, using up resources it can replace because of a lost technology. When the last machine breaks and the final food synthesizer collapses the people will die. This is the cooled down atomic pile. At the other extreme is complete and violent anarchy. Every man thinking only of himself, killing and destroying anything that gets in his way—the atomic explosion. Midway between the two is a vital, active, producing society.

"This is a generalization—and you must look at it that way. In reality society is infinitely complex, and the ramifications and possibilities are endless. It can do a lot more things than fizzle or go boom. Pressure of population, war or persecution patterns can cause waves of immigration. Plant and animal species can be wiped out by momentary needs or fashions. Remember the fate of the passenger pigeon and the American bison.

"All the pressures, cross-relationships, hungers, needs, hatreds, desires of people are reflected in their interrelationships. One man standing by himself tells us nothing. But as soon as he says something, passes on information in an altered form, or merely expresses an attitude—he becomes a reference point. He can be marked, measured and entered on a graph. His actions can be grouped with others and the action of the group measured. Man—and his society—then becomes a systems problem that can be fed into a computer. We've cut the Gordian knot of the three-L's and are on our way towards a solution."

"Stop!" Costa said, raising his hand. "I was with you as far as the 3L's. What are they? A private code?"

"Not a code—abbreviation. Linear Logic Language, the pitfall of all the old researchers. All of them, historians, sociologists, political analysts, anthropologists, were licked before they started. They had to know all about A and B before they could find C. Facts to them were always hooked up in a series. Whereas in truth they had to be analyzed as a complex circuit complete with elements like positive and negative feedback, and crossover switching. With the whole thing being stirred up constantly by continual homeostasis correction. It's little wonder they did do badly."

"You can't really say that," Adao Costa protested. "I'll admit that So-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

cietics has carried the art tremendously far ahead. But there were many basics that had already been discovered."

"If you are postulating a linear progression from the old social sciences—forget it," Neel said. "There is the same relationship here that alchemy holds to physics. The old boys with their frog guts and awful offal knew a bit about things like distilling and smelting. But there was no real order to their knowledge, and it was all an unconsidered by-product of their single goal, the whole nonsense of transmutation."

They passed a lounge, and Adao waved Neel in after him, dropping into a chair. He rummaged through his pockets for a cigarette, organizing his thoughts. "I'm still with you," he said. "But how do we work this back to the k-factor?"

"Simple," Neel told him. "Once you've gotten rid of the 3L's and their false conclusions. Remember that politics in the old days was all We are angels and They are devils. This was literally believed. In the history of mankind there has yet to be a war that wasn't backed by the official clergy on each side. And each declared that God was on their side. Which leaves You Know Who as

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

prime supporter of the enemy. This theory is no more valid than the one that a single man can lead a country into war, followed by the inference that a well-timed assassination can save the peace."

"That doesn't sound too unreasonable," Costa said.

"Of course not. All of the old ideas sound good. They have a simple-minded simplicity that anyone can understand. That doesn't make them true. Kill a war-minded dictator and nothing changes. The violence-orientated society, the factors that produced it, the military party that represents it—none of these are changed. The k-factor remains the same."

"There's that word again. Do I get a definition yet?"

Neel smiled. "Of course. The k-factor is one of the many factors that interrelate in a society. Abstractly it is no more important than the other odd thousand we work with. But in practice it is the only one we try to alter."

"The k-factor is the war factor," Adao Costa said. All the humor was gone now.

"That's a good enough name for it," Neel said, grinding out his half-smoked cigarette. "If a society has a positive k-factor, even a slight one that stays positive, then you are going to have a war. Our planetary operators have two jobs. First to gather and interpret data. Secondly to keep the k-factor negative."

They were both on their feet now, moved by the same emotion.

"And Himmel has a positive one that stays positive," Costa said. Neel Sidorak nodded agreement. "Then let's get into the ship and get going," he said.

It was a fast trip and a faster landing. The UN cruiser cut its engines and dropped like a rock in free fall. Night rain washed the ports and the computer cut in the maximum permissible blast for the minimum time that would reduce their speed to zero at zero altitude. Deceleration sat on their chests and squeezed their bones to rubber. Something crunched heavily under their stern at the exact instant the drive cut out. Costa was unbelted and out the door while Neel was still feeling his insides shiver back into shape.

The unloading had an organized rhythm that rejected Neel. He finally realized he could help best by standing back out of the way while the crewmen grav-lifted the heavy cases out through the cargo port, into the blackness of the rain-lashed woods. Adao Costa supervised this and seemed to know what he was doing. A signal rating wearing earphones stood to one side of the lock chanting numbers that sounded like detector fixes. There was apparently enough time to unload everything—but none to spare. Things got close towards the end.

Neel was suddenly bustled out into the rain and the last two crates were literally thrown out after him. He plowed through the mud to the edge of the clearing and had just

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

enough time to cover his face before the take-off blast burst out like a new sun.

"Sit down and relax," Costa told him. "Everything is in the green so far. The ship wasn't spotted on the way down. Now all we have to do is wait for transportation."

In theory at least, Adao Costa was Neel's assistant. In practice he took complete charge of moving their equipment and getting it under cover in the capital city of Kitezh. Men and trucks appeared to help them, and vanished as soon as their work was done. Within twenty hours they were installed in a large loft, all of the machines uncrated and plugged in. Neel took a no-sleep and began tuning checks on all the circuits, glad of something to do. Costa locked the heavy door behind their last silent helper, then dropped gratefully onto one of the bedding rolls.

"How did the gadgets hold up?" he asked.

"I'm finding out now. They're built to take punishment—but being dropped twelve feet into mud soup, then getting baked by rockets isn't in the original specs."

"They crate things well these days," Costa said unworriedly, sucking on a bottle of the famous Himmelian beer. "When do you go to work?"

"We're working right now," Neel told him, pulling a folder of papers out of the file. "Before we left I drew up a list of current magazines and newspapers I would need. You can start on these. I'll have a sampling program planned by the time you get back."

Costa groaned hollowly and reached for the papers.

Once the survey was in operation it went ahead of its own momentum. Both men grabbed what food and sleep they could. The computers gulped down Neel's figures and spat out tape-reels of answers that demanded even more facts. Costa and his unseen helpers were kept busy supplying the material.

Only one thing broke the ordered labors of the week. Neel blinked twice at Costa before his equation-fogged brain assimilated an immediate and personal factor.

"You've a bandage on your head," he said. "A *blood-stained* bandage!"

"A little trouble in the streets. Mobs. And that's an incredible feat of observation," Costa marveled. "I had the feeling that if I came in here *stark naked, you wouldn't notice it.*"

"I . . . I get involved," Neel said. Dropping the papers on a table and kneading the tired furrow between his eyes. "Get wrapped up in the computation. Sorry. I tend to forget about people."

"Don't feel sorry to me," Costa said. "You're right. Doing the job. I'm supposed to help you, not pose for the *before* picture in Home Hospital ads. Anyway—how are we doing? Is there going to be a war? Certainly seems like one brewing outside. I've seen two people lynched who were only suspected of being Earthies."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Looks don't mean a thing," Neel said, opening two beers. "Remember the analogy of the pile. It boils liquid metal and cooks out energy from the infrared right through to hard radiation. Yet it keeps on generating power at a nice, steady rate. But your A-bomb at zero minus one second looks as harmless as a fallen log. It's the k-factor that counts, not surface appearance. This planet may look like a dictator's dream of glory, but as long as we're reading in the negative things are fine."

"And how are things? How's our little k-factor?"

"Coming out soon," Neel said, pointing at the humming computer. "Can't tell about it yet. You never can until the computation is complete. There's a temptation to try and guess from the first figures, but they're meaningless. Like trying to predict the winner of a horse race by looking at the starters lined up at the gate."

"Lots of people think they can."

"Let them. There are few enough pleasures in this life without taking away all delusions."

Behind them the computer thunked and was suddenly still.

"This is it," Neel said, and pulled out the tape. He ran it quickly through his fingers, mumbling under his breath. Just once he stopped and set some figures into his hand computer. The result flashed in the window and he stared at it, unmoving.

"Good? Bad? What is it?"

Neel raised his head and his eyes were ten years older.

"Positive. Bad. Much worse than it was when we left Earth."

"How much time do we have?"

"Don't know for certain," Neel shrugged. "I can set it up and get an approximation. But there is no definite point on the scale where war *has* to break out. Just a going and going until, somewhere along the line—"

"I know. Gone." Costa said, reaching for his gun. He slid it into his side pocket. "Now it's time to stop looking and start doing. What do I do?"

"Going to kill War Marshal Lommeord?" Need asked distastefully. "I thought we had settled that you can't stop a war by assassinating the top man."

"We also settled that *something* can be done to change the k-factor. The gun is for my own protection. While you're radioing results back to Earth and they're feeling bad about it, I'm going to be doing something. Now *you* tell me what that something is."

This was a different man from the relaxed and quietly efficient Adao Costa of the past week. All of his muscles were hard with the restrained energy of an animal crouching to leap. The gun, ready in his pocket, had a suddenly new significance. Neel looked away, reaching around for words. This was all very alien to him and suddenly a little frightening. It was one thing to work out a k-problem in class, and discuss the theory of correction.

It was something entirely different to direct the operation.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Well?" Costa's voice knifed through his thoughts.

"You can . . . well . . . it's possible to change one of the peak population curves. Isolate individuals and groups, then effect status and location changes—"

"You mean get a lot of guys to take jobs in other towns through the commercial agents?"

Neel nodded.

"Too slow." Costa withered the idea with his voice. "Fine in the long run, but of absolutely no value in an emergency." He began to pace back and forth. Too quickly. It was more of a bubbling-over than a relaxation. "Can't you isolate some recent key events that can be reversed?"

"It's possible." Neel thought about it, quickly. "It wouldn't be a final answer, just a delaying action."

"That's good enough. Tell me what to do."

Neel flipped through his books of notes, checking off the Beta-13's. These were the reinforcers, the individuals and groups who were k-factor amplifiers. It was a long list which he cut down quickly by crossing off the low increment additions and multiple groups. Even while the list was incomplete, Neel began to notice a pattern. It was an unlikely one, but it was there. He isolated the motivator and did a frequency check. Then sat back and whistled softly.

"We have a powerhouse here," he said, flipping the paper across the table. "Take this organization out of the equations and you might even knock us negative."

"Society for the Protection of the Native Born," Costa read. "Doesn't sound like very important. Who or what are they?"

"Proof positive of the law of averages. It's possible to be dealt a royal flush in a hand of cards, but it isn't very common. It's just as possible for a bunch of simpletons to set up an organization for one purpose, and have it turn out to be a supercharged, high-frequency k-factor amplifier. That's what's happened with this infernal S.P.N.B.. A seedy little social club, dedicated to jingoists with low I.Q.'s. With the war scare they have managed to get hold of a few credits. They have probably been telling the same inflated stories for years about the descrimination against natives of this fair planet, but no one has really cared. Now they have a chance to get their news releases and faked pix out in quantity. Just at a time when the public is ripe for their brand of nonsense. Putting this bunch out of business will be a good day's work."

"Won't there be repercussions?" Costa asked. "If they are this important and throw so much weight around—won't it look suspicious if they are suddenly shut up. Like an obvious move by the enemy?"

"Not at all. That might be true if, for instance, you blew up the headquarters of the War Party. It would certainly be taken as an aggressive move. But no one really knows or cares about this Society of the Half-baked Native Born. There might be reaction and interest if attention was drawn to them. But if some accident

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

or act of nature were to put them out of business, that would be the end of it."

Costa was snapping his lighter on and off as he listened to Neel, staring at the flame. He closed it and held it up. "I believe in accidents. I believe that even in our fireproof age, fires still occur. Buildings still burn down. And if a burnt building just happened to be occupied by the S.P.N.B. —just one tenant of many—and their offices and records were destroyed; that would be of very little interest to anyone except the fire brigade."

"You're a born criminal," Neel told him. "I'm glad we're on the same side. That's your department and I leave it to you. I'll just listen for the news flashes. Meanwhile I have one little errand to take care of."

The words stopped Costa, who was almost out the door. He turned stiffly to look at Neel putting papers into an envelope. Yet Costa spoke naturally, letting none of his feelings through into his voice.

"Where are you going?"

"To see Hengly, the planetary operator here. Abravanel told me to stay away from him, to run an entirely new basic survey. Well we've done that now, and pinpointed some of the trouble areas as well. I can stop feeling guilty about poaching another man's territory and let him know what's going on."

"No. Stay away from Hengly," Costa said. "The last thing in the world we want to do, is to be seen near him. There's a chance that he . . . well . . . might be compromised."

"What do you mean!" Neel snapped. "Hengly's a friend of mine, a graduate—"

"He might also be surrounded ten deep by the secret police. Did you stop to think about *that?*"

Neel hadn't thought about it, and his anger vanished when he did. Costa drove the point home.

"Societics has been a well kept secret for over two centuries. It may still be a secret—or bits of it might have leaked out. And even if the Himmelians know nothing about Societics, they have certainly heard of espionage. They know the UN has agents on their world, they might think Hengly is one of them. This is all speculation, of course, but we do have one fact—this Society of Native Boobs we turned up. *We* had no trouble finding them. If Hengly had reliable field men, he should know about them, too. The only reason he hasn't is because he isn't getting the information. Which means he's compromised."

Reaching back for a chair, Neel fell heavily into it. "You're right . . . of course! I never realized."

"Good," Costa said. "We'll do something to help Hengly tomorrow, but this operation comes first. Sit tight. Get some rest. And don't open the door for anyone except me."

It had been a long job—and a tiring one—but it was almost over. Neel allowed himself the luxury of a long yawn, then shuffled over to the case of rations they had brought. He stripped the seal from something op-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

timistically labeled CHICKEN DINNER—it tasted just like the algae it had been made from—and boiled some coffee while it was heating.

And all the time he was doing these prosaic tasks his mind was turning an indigestible fact over and over. It wasn't a conscious process, but it was nevertheless going on. The automatic mechanism of his brain ran it back and forth like a half heard tune, searching for its name. Neel was tired, or he would have reacted sooner. The idea finally penetrated. One fact he had taken for granted was an obvious impossibility.

The coffee splashed to the floor as he jumped to his feet.

"It's wrong . . . it *has* to be wrong!" he said aloud, grabbing up the papers. Computations and graphs dropped and were trampled into the spilled coffee. When he finally found the one he wanted his hands were shaking as he flipped through it. The synopsis of Hengly's reports for the past five years. The gradual rise and fall of the k-factor from month to month. There were no sharp breaks in the curve or gaps in the supporting equations.

Societics isn't an exact science. But it's exact enough to know when it is working with incomplete or false information. If Hengly had been kept in the dark about the S.P.N.B., he would also have been misinformed about other factors. This kind of alteration of survey would *have* to show in the equations.

It didn't.

Time was running out and Neel had to act. But what to do? He must warn Adao Costa. And the records here had to be protected. Or better yet destroyed. There was a power in these machines and charts that couldn't be allowed to fall into nationalist hands. But what could be done about it?

In all the welter of equipment and containers, there was one solid, heavy box that he had never opened. It belonged to Costa, and the UN man had never unlocked it in his presence. Neel looked at the heavy clasps on it and felt defeat. But when he pulled at the lid, wondering what to do next, it fell open. It hadn't been sealed. Costa wasn't the kind of man who did things by accident. He had looked forward to the time when Neel might need what was in this box, and had it ready.

Inside was j what Neel expected. Grenades, guns, some smoothly polished devices that held an aura of violence. Looking at them, Neel had an overwhelming sensation of defeat. His life was dedicated to peace and the furthering of peace. He hated the violence that seemed inborn in man, and detested all the hypocritical rationalizations, such as the ends justifying the means. All of his training and personal inclinations were against it.

And he reached down and removed the blunt, black gun.

There was one other thing he recognized in the compact arsenal—a time bomb. There had been lectures on this mechanism in school, since the fact was clearly recognized that a

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

time might come when equipment had to be destroyed rather than fall into the wrong hands. He had never seen one since, but he had learned the lesson well. Neel pushed the open chest nearer to his instruments and set the bomb dial for fifteen minutes. He slipped the gun into his pocket, started the fuse, and carefully locked the door when he left.

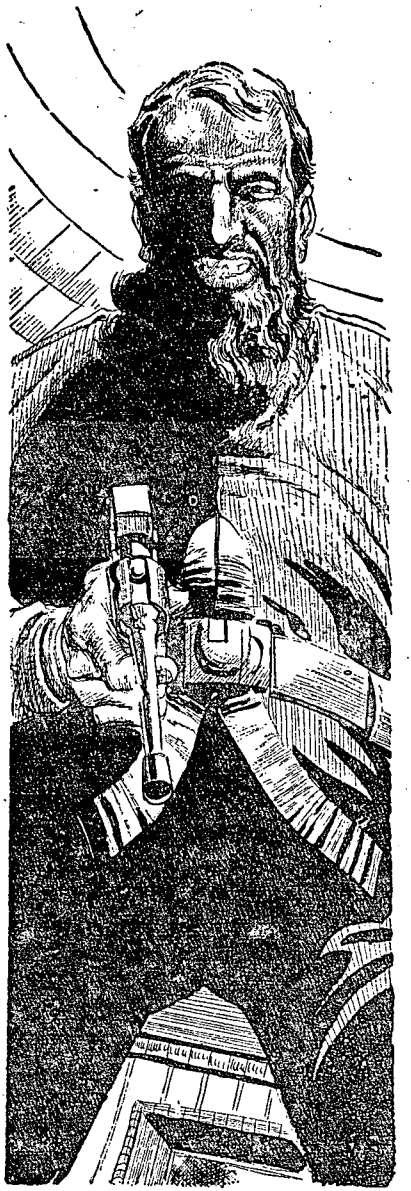
The bridges were burned. Now he had to find Adao Costa.

This entire operation was outside of his experience and knowledge. He could think of no plan that could possibly make things easier or safer. All he could do was head for the offices of the Society for the Protection of the Native Born and hope he could catch Adao before he ran into any trouble.

Two blocks away from the address he heard the sirens. Trying to act as natural as the other pedestrians, he turned to look as the armored cars and trucks hurtled by. Packed with armed police, their sirens and revolving lights cleared a path through the dark streets. Neel kept walking, following the cars now.

The street he wanted to go into was cordoned off.

Showing more than a normal interest would have been a giveaway. He let himself be hurried past, with no more than a glance down the block, with the other pedestrians. Cars and men were clustered around a doorway that Neel felt sure was number 265, his destination. Something was very wrong.



LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Had Costa walked into a trap—or tripped an alarm? It didn't really matter which, either way the balloon had gone up. Neel walked on slowly, painfully aware of his own inadequacy in dealing with the situation. It was a time for action—but what action? He hadn't the slightest idea where Costa was or how he could be of help to him.

Halfway down the block there was a dark mouth of an alleyway—unguarded. Without stopping to think, Neel turned into it. It would bring him closer to the building. Perhaps Costa was still trapped in there. He could get in, help him.

The back of 265 was quiet, with no hint of the activity on the other side of the building. Neel had counted carefully and was sure he had the right one. It was completely dark in the unlit alley, but he found a recessed door by touch. The chances were it was locked, but he moved into the alcove and leaned his weight against it, pulling at the handle, just in case. Nothing moved.

An inch behind his back the alley filled with light, washed with it, eye burning and strong. His eyes snapped shut, but he forced them open again, blinking against the pain. There were searchlights at each end of the alley, sealing it off. He couldn't get out.

In the instant before the fear hit him he saw the blood spots on the ground. There were three of them, large and glistening redly wet. They extended in a straight line away from him, pointing towards the gaping entrance of a cellar.

When the lights went out, Neel dived headlong towards the cracked and filthy pavement. The darkness meant that the police were moving slowly towards him from both ends of the alley, trapping him in between. There was nothing doubtful about the fate of an armed Earthman caught here. He didn't care. Neel's fear wasn't gone—he just had not time to think about it. His long shot had paid off and there was still a chance he could get Costa out of the trap he had let him walk into.

The lights had burned an afterimage into his retina. Before it faded he reached out and felt his fingers slide across the dusty ground into a patch of wetness. He scrubbed at it with his sleeve, soaking up the blood, wiping the spot fiercely. With his other hand he pushed together a pile of dust and dirt, spreading it over the stain. As soon as he was sure the stain was covered he slid forward, groping for the second telltale splash.

Time was his enemy and he had no way to measure it. He could have been lying in the rubble of that alley for an hour—or a second. What was to be done, had to be done at once without a sound. There were silent, deadly men coming towards him through the darkness.

After the second smear was covered there was a drawn out moment of fear when he couldn't find the third and last. His fingers touched it finally, much farther on than he had expected. Time had certainly run out. Yet he forced himself to do as good a job here as he had with the

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

other two. Only when it was dried and covered did he allow himself to slide forward into the cellar entrance.

Everything was going too fast. He had time for a single deep breath before the shriek of a whistle paralyzed him again. Footsteps slapped towards him and one of the searchlights burned with light. The footsteps speeded up and the man ran by, close enough for Neel to touch if he had reached out a hand. His clothing was shapeless and torn, his head and face thick with hair. That was all Neel had time to see before the guns roared and burned the life from the runner.

Some derelict, sleeping in the alley, who had paid with his life for being in the wrong spot at the wrong time. But his death had bought Neel a little more time. He turned and looked into the barrel of a gun.

Shock after shock had destroyed his capacity for fear. There was nothing left that could move him, even his own death. He looked quietly—dully—at the muzzle of the gun. With slow determination his mind turned over and he finally realized that this time there was nothing to fear.

"It's me, Adao," he whispered. "You'll be all right now."

"Ahh, it is you—" the voice came softly out of the darkness, the gun barrel wavered and sank. "Lift me up so I can get at this door. Can't seem to stand too well any more."

Neel reached down, found Costa's shoulders and slowly dragged him to his feet. His eyes were adjusting to the glare above them now, and he could make out the gleam of reflected light on the metal in Costa's fingers. The UN man's other hand was clutched tightly to his waist. The gun had vanished. The metal device wasn't a key, but Costa used it like one. It turned in the lock and the door swung open under their weight. Neel half carried, half dragged the other man's dead weight through it, dropping him to the floor inside. Before he closed the door he reached down and felt a great pool of blood outside.

There was no time to do a perfect job, the hard footsteps were coming, just a few yards away. His sleeves were sodden with blood as he blotted, then pushed rubble into the stain. He pulled back inside and the door closed with only the slightest click.

"I don't know how you managed it, but I'm glad you found me," Costa said. There was weakness as well as silence in his whisper.

"It was only chance I found you," Neel said bitterly. "But criminal stupidity on my part that let you walk into this trap."

"Don't worry about it, I knew what I was getting into. But I still had to go. Spring the trap to see if it *was* a trap."

"You suspected then that Hengly was—" Neel couldn't finish the sentence. He knew what he wanted to say, but the idea was too unbearable to put into words. Costa had no such compunction.

"Yes. Dear Hengly, graduate of the

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

University and Practitioner of Societics. A traitor. A warmonger, worse than any of his predecessors because he knew just what to sell and how to sell it. It's never happened before . . . but there was always the chance . . . the weight of responsibility was too much . . . he gave in—" Costa's voice had died away almost to a whisper. Then it was suddenly loud again, no louder than normal speaking volume, but sounding like a shout in the secret basement.

"Neel!"

"It's all right. Take it easy—"

"Nothing is all right—don't you realize that. I've been sending my reports back, so the UN and your Societics people will know how to straighten this mess out. But Hengly can turn this world upside down and might even get a shooting-war going before they get here. I'm out of it, but I can tell you who to contact, people who'll help. Hold the k-factor down—"

"That wouldn't do any good," Neel said quietly. "The whole thing is past the patch and polish stage now. Besides—I blew the whole works up. My machines and records, your—"

"You're a fool!" For the first time there was pain in Costa's voice.

"No. I was before—but not any more. As long as I thought it was a normal problem I was being outguessed at every turn. You must understand the ramifications of Societics. To a good operator there is no interrelationship that cannot be uncovered. Hengly would be certain to keep his eyes open for another field check. Our kind of operation is very easy to spot if you know where—and how—to look. The act of getting information implies contact of some kind, that contact can be detected. He's had our location marked and has been sitting tight, buying time. But our time ran out when you showed them we were ready to fight back. That's why I destroyed our setup, and cut our trail."

"But . . . then we're defenseless! What can we possibly do?"

Neel knew the answer, but he hesitated to put it into words. It would be final then. He suddenly realized he had forgotten about Costa's wound.

"I'm sorry . . . I forgot about your being hurt. What can I do?"

"Nothing," Costa snapped. "I put a field dressing on, that'll do. Answer my question. What is there left? What can be done now?"

"I'll have to kill Hengly. That will set things right until the team gets here."

"But what good will that accomplish?" Costa asked, trying to see the other man in the darkness of the cellar. "You told me yourself that a war couldn't be averted by assassination. No one individual means that much."

"Only in a normal situation," Neel explained. "You must look at the power struggle between planets as a kind of celestial chess game. It has its own rules. When I talked about individuals earlier I was talking about pieces on this chessboard. What I'm proposing now is a little more dramatic. I'm going to win the chess

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

game in a slightly more unorthodox way. I'm going to shoot the other chess player."

There was silence for a long moment, broken only by the soft sight of their breathing. Then Costa stirred and there was the sound of metal clinking slightly on the floor.

"It's really my job," Costa said, "but I'm no good for it. You're right, you'll have to go. But I can help you, plan it so you will be able to get to Hengly. You might even stand a better chance than me, because you are so obviously an amateur. Now listen carefully, because we haven't much time."

Neel didn't argue. He knew what needed doing, but Costa could tell him how best to go about it. The instructions were easy to memorize, and he put the weapons away as he was told.

"Once you're clear of this building, you'll have to get cleaned up," Costa said. "But that's the only thing you should stop for. Get to Hengly while he is still rattled, catch him off guard as much as possible. Then—after you finish with him—dig yourself in. Stay hidden at least three days before you try to make any contacts. Things should have quieted down a bit by then."

"I don't like leaving you here," Neel said.

"It's the best way, as well as being the only way. I'll be safe enough. I've a nice little puncture in me, but there's enough medication to see me through."

"If I'm going to hole up, I'll hole up here. I'll be back to take care of you."

Costa didn't answer him. There was nothing more to say. They shook hands in the darkness and Neel crawled away.

There was little difficulty in finding the front door of the building, but Neel hesitated before he opened it. Costa had been sure Neel could get away without being noticed, but he didn't feel so sure himself. There certainly would be plenty of police in the streets, even here. Only as he eased the door did he understand why Costa had been so positive about this.

Gunfire hammered somewhere behind him; other guns answered. Costa must have had another gun. He had planned it this way and the best thing Neel could do was not to think about it and go ahead with the plan. A car whined by in the roadway. As soon as it had passed Neel slipped out and crossed the empty street to the nearest monosub entrance. Most of the stations had valet machines.

It was less than an hour later when he reached Hengly's apartment. Washed, shaved—and with his clothes cleaned—Neel felt a little more sure of himself. No one had stopped him or even noticed him. The lobby had been empty and the automatic elevator left him off at the right floor when he gave it Hengly's name. Now, facing the featureless door, he had a sharp knife of fear. It was too easy. He reached out slowly and tried the handle. The door was

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

unlocked. Taking a deep breath, he opened it and stepped inside.

It was a large room, but unlit. An open door at the other end had a dim light shining through it. Neel started that way and pain burst in his head, spinning him down, face forward.

He never quite lost consciousness, but details were vague in his memory. When full awareness returned he realized that the lights were on in the room. He was lying on his back, looking up at them. Two men stood next to him, staring down at him from above the perspective columns of their legs. One held a short metal bar that he kept slapping into his open palm.

The other man was Hengly.

"Not very friendly for an old classmate," he said, holding out Neel's gun. "Now get inside I want to talk to you."

Neel rolled over painfully and crawled to his feet. His head throbbed with pain, but he tried to ignore it. As he stood up his hand brushed his ankle. The tiny gun Costa had given him was still in the top of his shoe. Perhaps Hengly wasn't being as smart as he should.

"I can take care of him," Hengly said to the man with the metal rod. "He's the only one left now, so you can get some sleep. See you early in the morning though." The man nodded agreement and left.

Slouched in the chair Neel looked forward to a certain pleasure in killing Hengly. Costa was dead, and this man was responsible for his death. It wouldn't even be like killing a friend, Hengly was very different from the man he had known. He had put on a lot of weight and affected a thick beard and flowing mustache. There was something jovial and paternal about him—until you looked into his eyes. Neel slumped forward, worn out, letting his fingers fall naturally next to the gun in his shoe. Hengly couldn't see his hand, the desk was in the way. All Neel had to do was draw and fire.

"You can pull out the gun," Hengly said with a grim smile, "but don't try to shoot it." He had his own gun now, aimed directly at Neel. Leaning forward he watched as Neel carefully pulled out the tiny weapon and threw it across the room. "That's better," he said, placing his own gun on the desk where he could reach it easily. "Now we can talk."

"There's nothing I have to say to you, Hengly." Neel leaned back in the chair, exhausted. "You're a traitor!"

Hengly hammered the desk in sudden anger and shouted. "Don't talk to me of treachery, my little man of peace. Creeping up with a gun to kill a friend. Is that peaceful? Where are the ethos of humanism now, you were very fond of them when we were in the University!"

Neel didn't want to listen to the words, he thought instead of how right Costa had been. He was dead, but this was still his operation. It was going according to plan.

"Walk right in there," Costa had said. "He won't kill you. Not at first, at least. He's the loneliest man in the

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

universe, because he has given up one world for another that he hasn't gained yet. There will be no one he can confide in. He'll know you have come to kill him, but he won't be able to resist talking to you first. Particularly if you make it easy for him to defeat you. Not too easy—he must feel he is outthinking you. You'll have a gun for him to take away, but that will be too obvious. This small gun will be hidden as well, and when he finds that, too, he should be taken off his guard. Not much, but enough for you to kill him. Don't wait. Do it at the first opportunity."

Out of the corner of his eye, Neel could see the radiophone clipped to the front of his jacket. It was slightly tarnished, looking like any one of ten thousand in daily use—almost a duplicate of the one Hengly wore. A universal symbol of the age, like the keys and small change in his pockets.

Only Neel's phone was a deadly weapon. Product of a research into sudden death that he had never been aware of before. All he had to do was get it near Hengly, the mechanism had been armed when he put it on. It had a range of two feet. As soon as it was that far from any part of his body it would be actuated.

"Can I ask you a question, Hengly?" His words cut loudly through the run of the other man's speech.

Hengly frowned at the interruption, then nodded permission. "Go ahead," he said. "What would you like to know?"

"The obvious. Why did you do it? Change sides I mean. Give up a positive work, for this . . . this negative corruption . . ."

"That's how much you know about it." Hengly was shouting now. "Positive, negative. War, peace. Those are

Statement of the Ownership, Management, and Circulation required by the Act of Congress of August 24, 1912, as amended by the Acts of March 3, 1933, July 2, 1946, and June 11, 1960 (74 Stat. 208) of ANALOG Science Fact fiction (formerly ASTOUNDING SCIENCE FICTION) published monthly, at New York, N.Y., for October 1, 1960.

1. The names and addresses of the publisher, editor, managing editor, and business managers are: *Publishers*, Street & Smith Publications, Inc., 575 Madison Avenue, New York 22, N. Y.; *editor*, John W. Campbell, 575 Madison Avenue, New York 22, N. Y.; *managing editor*, none; *business manager*, none.

2. The owner is Street & Smith Publications, Inc., 575 Madison Avenue, New York 22, N. Y., a corporation owned through stockholder: The Condé Nast Publications, Inc., Greenwich, Conn.: stockholders owning 1 percent or more of total amount of stock: Charles C. Nast, 420 Lexington Avenue, New York 17, N. Y., Iva S. V.-Patoévitch, 420 Lexington Avenue, New York 17, N. Y., The Patriot-News Co., Harrisburg, Pennsylvania.

3. The known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: None.

4. Paragraphs 2 and 3 include, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting; also the statements in the two paragraphs show the affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner.

5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: 74,408.

THOMAS H. KAISER, Secretary of Street & Smith Publications, Inc.

Sworn to and subscribed before me this 1st day of September, 1960. Richard Burns, Notary Public No. 24-0509325, Kings County. (My commission expires March 30, 1961.)

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

just words, and it took me years to find it out. What could be more positive than making something of my life—and of this planet at the same time. It's in my power to do it, and I've done it."

"Power, perhaps that's the key word," Neel said, suddenly very tired. "We have the stars now but we have carried with us our little personal lusts and emotions. There's nothing wrong with that, I suppose, as long as we keep them personal. It's when we start inflicting them on others the trouble starts. Well, it's over now. At least this time."

With a single, easy motion he unclipped the radiophone and flipped it across the desk towards Hengly.

"Good-by," he said.

The tiny mechanism clattered onto the desk and Hengly leaped back, shouting hoarsely. He pulled the gun up and tried to aim at the radiophone and at Neel at the same time. It was too late to do either. There was a brief humming noise from the phone.

Neel jerked in his chair. It felt as if a slight electric shock had passed through him. He had felt only a microscopic percentage of the radiation.

Hengly got it all. The actuated field of the device had scanned his nervous system, measured and tested it precisely. Then adjusted itself to the exact micro-frequency that carried the messages in his efferent nervous system. Once the adjustment had been made, the charged condensers had released their full blasts of energy on that frequency.

The results were horribly dramatic. Every efferent neutron in his system carried the message full power. Every muscle in his body responded with a contraction of full intensity.

Neel closed his eyes, covered them, turned away gasping. It couldn't be watched. An epileptic in a seizure can break the bones in a leg or arm by simultaneous contraction of opposing muscles. When all the opposed muscles of Hengly's body did this the results were horrible beyond imagining.

When Neel recovered a measure of sanity he was in the street, running. He slowed to a walk, and looked around. It was just dawn and the streets were empty. Ahead was the glowing entrance of a monotube and he headed for it. The danger was over now, as long as he was careful.

Pausing on the top step, he breathed the fresh air of the new morning. There was a sighing below as an early train pulled into the station. The dawn-lit sky was the color of blood.

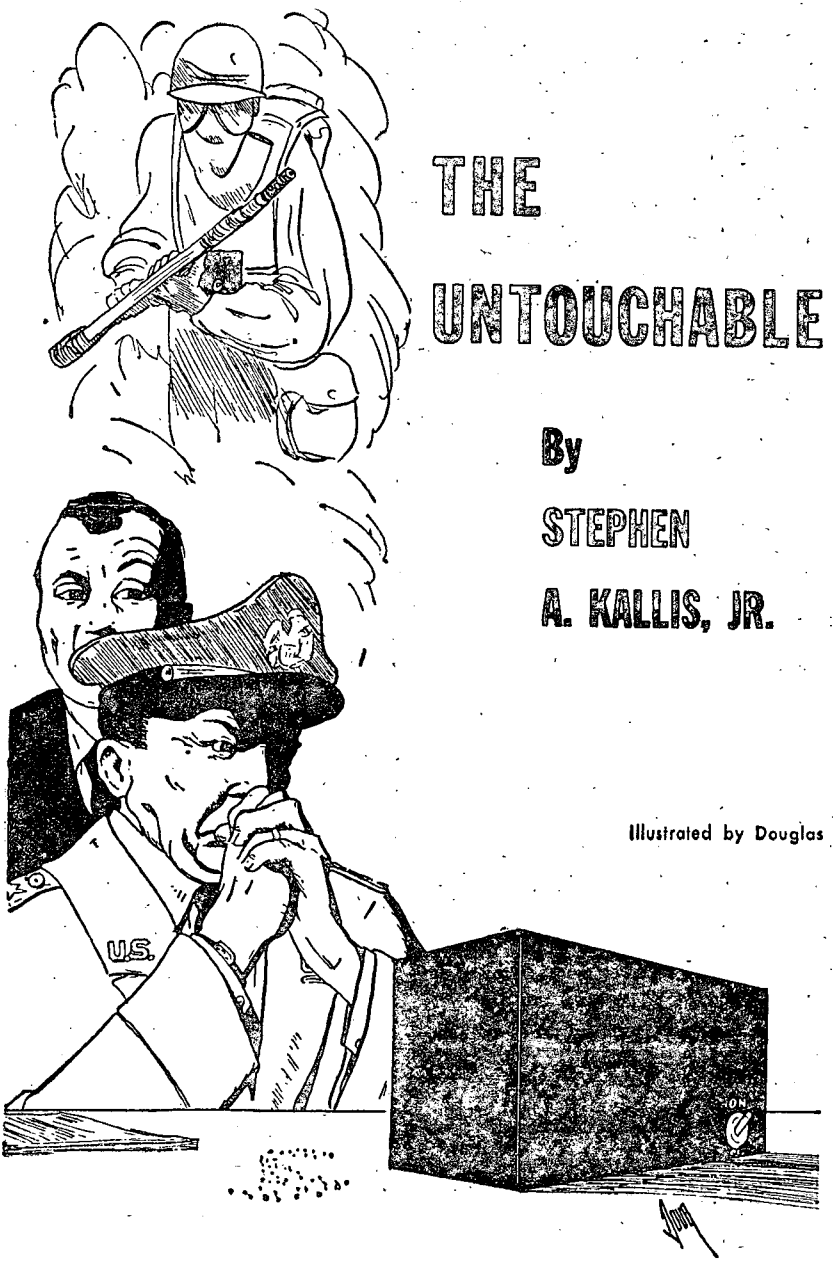
"Blood," he said aloud. Then, "Do we have to keep on killing? Isn't there another way?"

He started guiltily as his voice echoed in the empty street, but no one had heard him.

Quickly, two at a time, he ran down the steps.

THE END

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



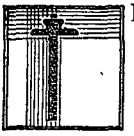
THE UNTOUCHABLE

By STEPHEN A. KALLIS, JR.

Illustrated by Douglas

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"You can see it—you can watch it—but mustn't touch!" And what could possibly be more frustrating . . . when you need, most violently, to get your hands on it for just one second . . .



HE man finally entered the office of General George Carvers. As the door closed behind him, he saw the general, who sprang from his chair to greet him.

"Max! You finally came."

"Got here as soon as I could. I wager half my time was taken up by the security check points. You are certainly isolated in here."

"All of that," agreed the general. "Have a seat, won't you?" he asked, indicating a chair.

His friend sank into it gratefully. "Now, what's this vital problem you called me about? You weren't too specific."

"No," said Garvers, "I wasn't. This is a security matter, after a fashion. It's vitally important that we get technical help on this thing, and since you and I are friends, I was asked to call you in."

"Well?"

"I'm afraid I'll have to make a story of it."

"Quite all right by me, but don't mind if I interject a question now and then. Mind if I smoke?"

"Go right ahead," said Garvers, fumbling out a lighter. "Just don't spill ashes on the rug.

"This all began on the Third of May. I was working here on some top-security stuff. I had suddenly got the feeling of being watched. I know it seems silly, what with all the check points that a potential spy would have to go through to get here, but that's just how I felt.

"Several times I glanced around the office, but of course it was empty. Then I began to think that it was my nerves."

"You always were a bit of a hypochondriac," observed his friend.

"Be that as it may," continued Garvers, "it was the only explanation I had at the time. Either someone was watching me, which seemed impossible, or I was beginning to crack under the strain.

"Well, I put my papers away and

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

tried to take a short break. I was reaching into my drawer where I keep magazines when, so help me, a man stepped out of the wall into my office."

"What? It seems as if you just said a guy stepped out of the wall."

"That's just what I did say. It sounds crazy, but let me finish, will you? I'm not kidding, and I'll show you proof later if necessary.

"Anyway, this bird stepped straight out of the wall as if it had been a waterfall or something, but the wall itself was undamaged. The only proof I had that he had actually done it was the fact that he was in my office, but that was proof enough.

"To put it mildly, I was thunderstruck. After jumping to my feet, I could only stand there like an idiot. I was so shaken that I couldn't speak a word. But he spoke first.

"'General Garvers?'" he asked, just as if he had run into me at a cocktail party or on the street.

"I told him he was correct, and asked him who *he* was and what he wanted. And how he got into my office.

"He identified himself as a Henry Busch and explained that he was acting in behalf of a good friend of his, the late Dr. Hymann Duvall. Have you ever heard of Duvall, Max?"

His friend twisted his face in thought. "Can't say that I have, offhand. But the name seems to ring a bell somewhere."

"Well, anyway, he said that Duvall had perfected an invention of great national importance shortly before his death and asked Busch to deliver it to the government if anything should happen to him. Then Duvall died suddenly of a heart attack."

"And what was this invention?"

"Isn't it obvious? A machine that would enable a man to walk through walls. And Busch has no idea how the thing works, other than the general explanation that Duvall gave him. And Busch was poles apart from Duvall. They were friends from college, but not because of professional interests. It seems they were both doublecrossed by the same girl.

"Duvall was a brilliant but obscure nuclear and radiation physicist. He was one of those once-in-a-lifetime fellows like Tesla. He was so shy that he didn't bring himself to anybody's attention, save for a few papers he published in the smaller physical societies' magazines. It was only because he had inherited a considerable amount of money that he could do any research whatsoever."

"Hm-m-m. I seem to remember a paper about wave propagation in one of the quarterlies. Quite unorthodox, as I recall," said Max.

"Could be. But anyway, about Busch.

"Busch majored in psychology at college, but took special courses after he graduated and took a Master's in English. He has written two novels and three collections of poems under various pen names. At the time of Duvall's death, he was working on the libretto of an opera. He has had no technical training, unless you want to count a year of high school

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

general science. So he wasn't too much help in explaining how Duvall's instrument works.

"And, just to make matters more juicy, Duvall kept no notes. He had total recall and a childlike fear of putting anything into writing that had not been experimentally verified."

"And this machine, how is it supposed to work?"

Garvers got up and began to pace. "According to Busch, Duvall devised the instrument after stumbling into an entirely new branch of physics.

"This device of Duvall's is a special case of a new theory of matter and energy. Matter is made up of subnuclear particles—electrons, protons and the like. However, Duvall said that these particles are in turn made up of much smaller particles grouped together in aggregate clouds. The size ratio of these particles to protons is somewhat like the ratio of an individual proton to a large star. They seem to be composed of tiny clots of energy from a fantastically complex energy system, in which electromagnetism is but a small part. Each energy-segment is represented by a different facet of each particle, and the arrangement of the individual particles to each other determines what super-particle they will form, such as an electron. Duvall called these sub-particles 'lems'.

"Busch says he was told that a field of a special nature could be generated so as to make the individual lems in the particles of matter rotate in a special way that would introduce a 'polarization field', as Duvall called it. This field seems to be connected somehow with gravity, but Busch wasn't told how.

"The upshot is that matter in the *initial* presence of the field is affected so that it is able to pass through ordinary matter—"

"Hold on," interrupted Max. "If a device can do that, then the user would immediately fall towards the center of the Earth."

"Just *you* hold on. You didn't let me finish. A single plane of atoms, at the base of the treated object is the point of contact. It remains partially unaffected because it is closest to the 'gravetostatic field center', which I guess is the Earth's center of attraction. This plane of 'semi-treated' atoms can be forced through an object, if it is moved horizontally, but its 'untreated' aspect prevents the subject wearing the device from falling through the floor.

"Busch demonstrated this device to me, turning it on and strolling through various objects in this room. Think of it! No soldier could be killed or held prisoner. And—"

"Now hang on," objected Max. "Let's not run away with ourselves. He may have perfected a device that would enable a soldier to avoid capture, but there would certainly be other ways to kill him than by bullets. Let's see now: suppose that the enemy shot a flamethrower at him. The burning materials might pass through him, but he would be cooked anyway. Or poison gas—"

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Hm-m-m. As far as gas goes, I suppose a gas mask would be necessary. Busch doesn't know about the breathing mechanism, except that he had to take breaths. But as far as fire or radiation goes, the man's protected. If the radiation is either harmful by nature or by amount, the field merely reflects it. It is something called the 'lemic stress' of the field that causes the phenomenon.

"That's why we need your help."

Max scratched his head thoughtfully. "I don't understand."

Garvers looked pained. "When Busch had finished his demonstration, he carelessly tossed the device on my deck. The thing skidded and hit my paperweight so that the switch was thrown on again. So now the device and my desk are both untouchable.

"Go over to the desk and try to touch it," said Garvers dryly.

His friend got up and ambled over to the desk. There he saw a small black box resting near a paperweight. Its toggle switch was at the "on" position, and it was lying on its side. He tried to pick the box up, but his hand slid effortlessly through it as if it were so much air.

"Well!" Max said. He passed his hand through the desk again. "Well, well. Are you sure Busch told you everything?"

"Busch! He honestly wants to help and we have taken him through the mill. Pentathol, scopolamine and the like; hypnotism and the polygraph. We've dug that man deeper than we have ever dug anybody before."

"And have you conducted any experiments of your own?"

"Certainly. That's what is so frustrating. We try to X ray the thing, and we don't get a thing. We bombarded it with every radiation we could think of, from radio to gamma and it just reflected them. We can detect no radiation coming out of it. Magnetic fields don't effect it, nor do heat and cold. Nuclear particles are ignored by it; it just *sits* there thumbing its nose at us. And we can't even wait for it to run down. According to Busch, the power requirements of the thing are funny and once the field is established, it takes no additional energy to maintain it. And the collapsing power remains indefinitely until it is time to turn the machine off, but it's unreachable by any means we have.

"It's pure frustration. There's no way we can analyze it until we can handle it, and no way we can handle it until we can turn it off. And there's no way we can turn it off until we have analyzed it. If it were alive, I'd think that it was laughing at us.

"Do *you* have any ideas?" asked Garvers hopefully.

"Nothing that would help a solution at present," said Max. "But do you remember the legend of King Tantalus?"

"Slightly. What about it?"

"Well . . . if *he* were here," said Max thoughtfully, "he'd . . . sympathize."

THE END

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

OCCASION .

By MARK PHILLIPS

Second of Four Parts. Finding a criminal is relatively easy; he, at least, knows he's a criminal. But finding someone about to make a goof and bring about disaster is different.

KENNETH J. MALONE, FBI agent extraordinary, is called to the office of ANDREW J. BURRIS, FBI head, and assigned to a new case. It seems that official Washington is beginning to crack up. Senators and congressmen have been making mistakes, and the errors are apparently traceable to some fault in the computer-secretaries used by Congress. Burris is greatly confused, since nobody can find out exactly where the fault lies; all he knows for sure is that four representatives and two senators have come complaining to him about the errors, and something has to be done. Malone promises faithfully to do it, whatever it turns out to be, and decides that his first move is to go and visit a technician.

Illustrated by van Dongen

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

FOR DISASTER

The technician digs into the matter, and informs Malone that the machines seem to be in perfect order. The technicians working on them are the ones making the mistakes—feeding false data into the computers, misreading answers, and generally fouling things up. But the mistakes don't follow any normal pattern; there are no peaks and valleys. Everybody, he tells Malone, is doing it—and everybody is involved to about the same degree. Maybe there really aren't any mistakes; maybe the technicians are deliberately feeding wrong answers into the machines.

Malone goes to his office to think things over and read up on the dossiers of the technicians concerned,

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

when he is visited by THOMAS BOYD, another FBI agent who's worked with Malone before, and who bears an uncanny resemblance to Henry VIII. Boyd is working on what looks like another aspect of the same case: the mass resignations and mental breakdowns of senators from the West Coast. They decide to pool resources and talk things over.

It's not only Congress that's behaving oddly, they realize. Everything is going to hell in a handbasket: bigshot gangsters are getting killed in Prohibition-era quantities, and the labor unions are full of internal strife. Whatever is working on Congress appears to be working on everything else, too.

Malone's first thought is Russian or Chinese sabotage—an organization working to subvert the United States. But why would they want to sabotage the gangsters? And how is the sabotage being managed? Malone feels it's most probably some sort of psionic force—since the number of spies required for anything else is so large they could take over the country by voting their men in. Boyd doesn't even want to think about this and decides to work on the physical end of things.

While Boyd begins grilling technicians, Malone goes off to talk with DR. THOMAS O'CONNOR of Westinghouse, the foremost scientific authority on psionics. O'Connor tells him that a psionic force that would make a lot of men act in the same way is a completely new notion, and doesn't really sound possible. O'Connor mentions the American Society for Psychical Research, and Malone decides to visit them and see if they've got anything he can use.

Somehow, in the process of teleporting himself from Washington to O'Connor's Yucca Flats office and back to New York, he's developed a fine new cold. His first meeting with a beautiful redhead in the Psychical Research Society offices, therefore, is a little odd: he sneezes at her. The redhead, whose name is LOU, reacts unfavorably to this form of greeting, but does get him in to see the head of the Society, SIR LEWIS CARTER, who promises to send him copies of all relevant data to his question. But, he warns, there isn't going to be much, and Malone doesn't feel that any of it is going to be particularly helpful.

He calls ROSE THOMPSON mentally. She's otherwise known as QUEEN ELIZABETH I, a sweet little old lady who is as batty as the entire National League but who happens to be telepathic. She firmly believes that she is Queen Elizabeth, and has knighted Malone with the muzzle of Malone's .44 Magnum.

"I've been hoping you'd ask me to come," she says when Malone calls her for help. He asks her what's wrong and she tells him she's run into something entirely new—a form of disturbance like telepathic static. She gets burst of meaningless "hash" that seem to flare up almost at random intervals. She has no idea of the cause but is frightened of the disturbances.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

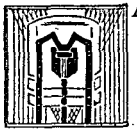
The phone rings, but Her Majesty tells Malone it isn't important—only Boyd calling to say he's arrested three spies. "That doesn't matter at all," she says.

"It doesn't?" Malone says.

"Not at all," Her Majesty says. "What does matter is that I've only been picking up these flashes since you were assigned to this new case, Sir Kenneth. And they only appear when I'm tuned to your *mind!"*

Part 2

V



MALONE stared. He tried to say something but he couldn't find any words. The telephone rang again and he pushed the switch with a sense of relief. The beard-fringed face of Thomas Boyd appeared on the screen.

"You're getting hard to find," Boyd said. "I think you're letting fame and fortune go to your head."

"I left word at the office that I was coming here," Malone said aggrievedly.

"Sure you did," Boyd said. "How do you think I found you? Am I telepathic? Do I have strange powers?"

"Wouldn't surprise me in the least," Malone said. "Now, about those spies—"

"See what I mean?" Boyd said. "How did you know?"

"Just lucky, I guess," Malone murmured. "But what about them?"

"Well," Boyd said, "we picked up two men working in the Senate Office Building, and another one working for the State Department."

"And they are spies?" Malone said. "Real spies?"

"Oh, they're real enough," Boyd said. "We've known about 'em for years, and I finally decided to pick them up for questioning. Maybe they have something to do with all this mess that's bothering everybody."

"You haven't the faintest idea what you mean," Malone said. "Mess is hardly the word."

Boyd snorted. "You go on getting yourself confused," he said, "while some of us do the real work. After all—"

"Never mind the insults," Malone said. "How about the spies?"

"Well," Boyd said, a trifle reluctantly, "they've been working as janitors and maintenance men, and of course we've made sure they haven't been able to get their hands on any really valuable information."

"So they've suddenly turned into criminal masterminds," Malone said. "After being under careful surveillance for years—"

"Well, it's possible," Boyd said defensively.

"Almost anything is possible," Malone said.

"Some things," Boyd said carefully, "are more possible than others."

"Thank you, Charles W. Aristotle," Malone said. "I hope you realize what you've done, picking up those three men. We might have been able to get some good lines on them, if you'd left them where they were."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

There is an old story about a general who went on an inspection tour of the front during World War I, and, putting his head incautiously up out of a trench, was narrowly missed by a sniper's bullet. He turned to a nearby sergeant and bellowed: "Get that sniper!"

"Oh, we've got him spotted, sir," the sergeant said. "He's been there for six days now."

"Well, then," the general said, "why don't you blast him out of there?"

"Well, sir, it's this way," the sergeant explained. "He's fired about sixty rounds since he's been out there, and he hasn't hit anything yet. We're afraid if we get rid of him they'll put up somebody who *can* shoot."

This was standard FBI policy when dealing with minor spies. A great many had been spotted, including four in the Department of Fisheries. But known spies are easier to keep track of than unknown ones. And, as long as they're allowed to think they haven't been spotted, they may lead the way to other spies or spy networks.

"I thought it was worth the risk," Boyd said. "After all, if they have something to do with the case—"

"But they don't," Malone said.

Boyd exploded, "Let me find out for myself, will you? You're spoiling all the fun."

"Well, anyhow," Malone said, "they don't."

"You can't afford to take any chances," Boyd said. "After all, when I think about William Logan, I tell myself we'd better take care of every lead."

"Well," Malone said finally, "you may be right. And then again, you may be normally wrong."

"What is that supposed to mean?" Boyd said.

"How should I know?" Malone said "I'm too busy to go around and around like this. But since you've picked up the spies, I suppose it won't do any harm to find out if they know anything."

Boyd snorted again. "Thank you," he said, "for your kind permission."

"I'll be right down," Malone said.

"I'll be waiting," Boyd said. "In Interrogation Room 7. You'll recognize me by the bullet hole in my forehead and the strange South American poison, hitherto unknown to science, in my oesophagus."

"Very funny," Malone said. "Don't give up the ship."

Boyd switched off without a word. Malone shrugged at the blank screen and pushed his own switch. Then he turned slowly back to Her Majesty, who was standing, waiting patiently, at the opposite side of the desk. Interference, he thought, located around him—

"Why, yes," she said. "That's exactly what I did say."

Malone blinked. "Your Majesty," he said, "would you mind terribly if I asked you questions before you answered them? I know you can see them in my mind, but it's simpler for me to do things the normal way, just now."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"I'm sorry," she said sincerely. "I do agree that matters are confused enough already. Please go on."

"Thank you, Your Majesty," Malone said. "Well, then. Do you mean that *I'm* the one causing all this . . . mental static?"

"Oh, no," she said. "Not at all. It's definitely coming from somewhere else, and it's beamed at you, or beamed around you."

"But—"

"It's just that I can only pick it up when I'm tuned to your mind," she said.

"Like now?" Malone said.

She shook her head. "Right now," she said, "there isn't any. It only happens every once in a while—every so often, and not continuously."

"Does it happen at regular intervals?" Malone said.

"Not as far as I've been able to tell," Her Majesty said. "It just . . . happens, that's all. There doesn't seem to be any rhyme or reason to it. Except that it did start when you were assigned to this case."

"Lovely," Malone said. "And what is it supposed to mean?"

"Interference," she said. "Static. Jumble. That's all it means. I just don't know any more than that, Sir Kenneth; I've never experienced anything like it in my life. It really does disturb me."

That, Malone told himself, he could believe. It must be an experience, he told himself, like having someone you were looking at suddenly dissolve into a jumble of meaningless shapes and lights.

"That's a very good analogy," Her Majesty said. "If you'll pardon me speaking before you've voiced your thought—"

"Not at all," Malone said. "Go right ahead."

"Well, then," Her Majesty said. "The analogy you use is a good one. It's just as disturbing and as meaningless as that."

"And you don't know what's causing it?" Malone said.

"I don't know," she said.

"Nor what the purpose of it is?" he said.

Her Majesty shook her head slowly. "Sir Kenneth," she said, "I don't even know whether or not there *is* any purpose."

Malone sighed deeply. Nothing in the case seemed to make any sense. It wasn't that there were no clues, or no information for him to work with. There were a lot of clues, and there was a lot of information. But nothing seemed to link up with anything else. Every new fact was a bright, shiny arrow pointing nowhere in particular.

"Well, then—" he started.

The intercom buzzed. Malone jabbed ferociously at the button. "Yes," he said.

"The ghosts are here," the agent-in-charge's voice said.

Malone blinked. "What?" he said.

"You said you were going to get some ghosts," the agent-in-charge said. "From the Psychical Research Society, in a couple of large bundles. And they're here now. Want me to exorcise 'em for you?"

"No," Malone said wearily. "Just

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

send them in to join the crowd. Got a messenger?"

"I'll send them down," the agent-in-charge said. "About one minute."

Malone nodded, realized the man couldn't see him, said: "Fine," and switched off. He looked at his watch. A little over half an hour had passed since he had left the Psychical Research Society offices. That, he told himself, was efficiency.

Not that the books would mean anything, he thought. They would just take their places at the end of the long row of meaningless, disturbing, vicious facts that cluttered up his mind. He wasn't an FBI agent any more; he was a clown and a failure, and he was through. He was going to resign and go to South Dakota and live the life of a hermit. He would drink goat's milk and eat old shoes or something, and whenever another human being came near he would run away and hide. They would call him Old Kenneth, and people would write articles for magazines about The Twentieth Century Hermit.

And that would make him famous, he thought wearily, and the whole circle would start all over again.

"Now, now, Sir Kenneth," Queen Elizabeth said. "Things aren't quite that bad."

"Oh, yes, they are," Malone said. "They're even worse."

"I'm sure we can find an answer to all your questions," Her Majesty said.

"Sure," Malone said. "Even I can find an answer. But it isn't the right one."

"You can?" Her Majesty said.

"That's right," Malone said. "My answer is: To Hell with everything."

Malone's Washington offices didn't look any different. He sighed and put the two big packages from the Psychical Research Society down on his desk, and then turned to Her Majesty.

"I wanted you to teleport along with me," he said, "because I need your help."

"Yes," she said. "I know."

He blinked. "Oh. Sure you do. But let me go over the details."

Her Majesty waved a gracious hand. "If you like, Sir Kenneth," she said.

Malone nodded. "We're going on down to Interrogation Room 7 now," he said. "Next door to it, there's an observation room, with a one-way panel in the wall. You'll be able to see us, but we won't be able to see you."

"I really don't require an observation panel," Her Majesty said. "If I enter your mind, I can see through your eyes—"

"Oh, sure," Malone said. "But the observation room was built for more normal people—saving your presence, Your Majesty."

"Of course," she said.

"Now," Malone went on, "I want you to watch all three of the men we're going to bring in, and dig everything you can out of their minds."

"Everything?" she said.

"We don't know what might be useful," Malone said. "Anything you can find. And if you want any ques-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

tions asked—if there's anything you think I ought to ask the men, or say to them—there's a nonvision phone in the observation room. Just lift the receiver. That automatically rings the one in the Interrogation Room and I'll pick it up. Understand?"

"Perfectly, Sir Kenneth," she said.

"O.K., then," Malone said. "Let's go." They headed for the door. Malone stopped as he opened it. "And by the way," he said.

"Yes?"

"If you get any more of those—disturbances, let me know."

"At once," Her Majesty promised.

They went on down the hall and took the elevator down to Interrogation Room 7, on the lowest level. There was no particular reason for putting the Interrogation section down there, except that it tended to make prisoners more nervous. And a nervous prisoner, Malone knew, was very possibly a confessing prisoner.

Malone ushered Her Majesty through the unmarked door of the observation chamber, made sure that the panel and phone were in working order, and went out. He stepped into Interrogation Room 7 trying hard to look bored, businesslike and unbeatable. Boyd and four other agents were already there, all standing around and talking desultorily in low tones. None of them looked as if they had ever had a moment's worry in their lives. It was all part of the same technique, of course, Malone thought. Make the prisoner feel resistance is useless, and you've practically got him working for you.

The prisoner was a hulking, flabby fat man in work coveralls. He had black hair that spilled all over his forehead, and tiny button eyes. He was the only man in the room who was sitting down, and that was meant to make him feel even more inferior and insecure. His hands were clasped fatly in his lap, and he was staring down at them in a regretful manner. None of the FBI agents paid the slightest attention to him. The general impression was that something really tough was coming up, but that they were in no hurry for it. They were willing to wait for the Third Degree, it seemed, until the blacksmith had done a really good job with the new spikes for the Iron Maiden.

The prisoner looked up apprehensively as Malone shut the door. Malone paid no attention to him, and the prisoner unclasped his hands, rubbed them on his coveralls and then reclasped them in his lap. His eyes fell again.

Boyd looked up, too. "Hello, Ken," he said. He tapped a sheaf of papers on the single table in the room. Malone went over and picked them up.

They were the abbreviated condensations of three dossiers. All three of the men covered in the dossiers were naturalized citizens, but all had come in as "political refugees"—from Hungary, from Czechoslovakia, and from East Germany. Further checking had turned up the fact that all three were actually Russians. They had been using false names during their stay in the United States, but

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

their real ones were appended to the dossiers.

The fat one in the Interrogation Room was named Alexis Brubitsch. The other two, who were presumably waiting separately in other rooms, were Ivan Borbitsch and Vasili Garbitsch. The collection sounded, to Malone, like a seedy musical-comedy firm of lawyers: Brubitsch, Borbitsch and Garbitsch. He could picture them dancing gaily across a stage while the strains of music followed them, waving legal forms and telephones and singing away.

Brubitsch did not, however, look very gay. Malone went over to him now, walking slowly, and looked down. Boyd came and stood next to him.

"This is the one who won't talk, eh?" Malone said, wondering if he sounded as much like Dick Tracy as he thought he did. It was a standard opening, meant to make the prisoner think his fellows had already confessed.

"That's him," Boyd said.

"Hm-m-m," Malone said, trying to look as if he were deciding between the rack and the boiling oil. Brubitsch fidgeted slightly, but he didn't say anything.

"We didn't know whether we had to get this one to talk, too," Boyd said. "What with the others, and all. But we did think you ought to have a look at him." He sounded very bored. It was obvious from his tone that the FBI didn't care in the least if Alexis Brubitsch never opened his mouth again, in what was likely to be a very short lifetime.

"Well," Malone said, equally bored, "we might be able to get a few corroborative details."

Brubitsch swallowed hard. Malone ignored him.

"Now, just look at him," Boyd said. "He certainly doesn't *look* like the head of a spy ring, does he?"

"Of course he doesn't," Malone said. "That's probably why the Russians used him. They figured nobody would ever look twice at a fat slob like this. Nobody would ever suspect him of being the head man."

"I guess you're right," Boyd said. He yawned, which Malone thought was overacting a trifle. Brubitsch saw the yawn, and one hand came up to jerk at his collar.

"Who'd ever think," Malone said, "that he plotted those killings in Redstone—all three of them?"

"It is surprising," Boyd said.

"But, then," Malone said, "we know he did. There isn't any doubt of that."

Brubitsch seemed to be turning a pale green. It was a fascinating color, unlike any other Malone had ever seen. He watched it with interest.

"Oh, sure," Boyd said. "We've got enough evidence from the other two to send this one to the chair tomorrow, if we want to."

"More than enough," Malone agreed.

Brubitsch opened his mouth, shut it again and closed his eyes. His lips moved silently.

"Tell me," Boyd said conversationally, leaning down to the fat man.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Did your orders on that job come from Moscow, or did you mastermind it all by yourself?

Brubitsch's eyes stirred, then snapped open as if they'd been pulled by a string. "Me?" he said in a hoarse bass voice. "I know nothing about this murder. What murder?"

There were no such murders, of course. But Malone was not ready to let Brubitsch know anything about that. "Oh, the ones you shot in Redstone," he said in an offhand way.

"The what?" Brubitsch said. "I shot people? Never."

"Oh, sure you did," Boyd said. "The others say you did."

Brubitsch's head seemed to sink into his neck. "Borbitsch and Garbitsch, they tell you about a murder? It is not true. Is a lie."

"Really?" Malone said. "We think it's true."

"Is a lie," Brubitsch said, his little eyes peering anxiously from side to side. "Is not true," he went on hopefully. "I have alibi."

"You do?" Boyd said. "For what time?"

"For time when murder happened," Brubitsch said. "I was some place else."

"Well, then," Malone said, "how do you know when the murders were done? They were kept out of the newspapers." That, he reflected, was quite true, since the murders had never happened. But he watched Brubitsch with a wary eye.

"I know nothing about time," Brubitsch said, jerking at his collar. "I don't know when they happened."

"Then how can you have an alibi?" Boyd snapped.

"Because I didn't do them!" Brubitsch said tearfully. "If I didn't, then I *must* have alibi!"

"You'd be surprised," Malone said. "Now, about these murders—"

"Was no murder, not by me," Brubitsch said firmly. "Was never any killing of anybody, not even by accident."

"But your two friends say—" Boyd began.

"My two friends are not my friends," Brubitsch said firmly. "If they tell you about murder and say it was me, they are no friends. I did not murder anybody. I have alibi. I did not even murder anybody a little bit. They are no friends. This is terrible."

"There," Malone said reflectively, "I agree with you. It's positively awful. And I think we might as well give it up. After all, we don't need your testimony. The other two are enough; they'll get maybe ten years apiece, but you're going to get the chair."

"I will not sit down," Brubitsch said firmly. "I am innocent. I am innocent like a small child. Does a small child commit a murder? It is ridiculous."

Boyd picked up his cue with ease. "You might as well give us your side of the story, then," he said easily. "If you didn't commit any murders—"

"I am a small child," Brubitsch announced.

"O.K.," Boyd said. "But if you didn't commit any murders, just what

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

have you been doing since you've been in this country as a Soviet agent?"

"I will say nothing," Brubitsch announced. "I am a small child. It is enough." He paused, blinked, and went on: "I will only tell you this: no murders were done by our group in any of our activities."

"And what were your activities?"

"Oh, many things," Brubitsch said. "Many, many things. We—"

The telephone rang loudly, and Malone scooped it up with a practiced hand. "Malone here," he said.

Her Majesty's voice was excited. "Sir Kenneth!" she said. "I just got a tremendous burst of—static!"

Malone blinked. *Is my mind acting up again?* he thought, knowing she would pick it up. *Am I being interfered with?*

He didn't feel any different. But then, how was he supposed to feel?

"It's not *your* mind, Sir Kenneth," Her Majesty said. "Not this time. It's *his* mind. That sneaky-thinking Brubitsch fellow."

Brubitsch? Malone thought. *Now what is that supposed to mean?*

"I don't know, Sir Kenneth," Her Majesty said. "But get on back to your questioning. He's ready to talk now."

"O.K.," Malone said aloud. "Fine." He hung up and looked back to the Russian sitting on his chair. Brubitsch was ready to talk, and that was one good thing, anyhow. But what was all the static about?

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

What was going on?

"Now, then," Malone said. "You were telling us about your group activities."

"True," Brubitsch said. "I did not commit any murders. It is possible that Borbitsch committed murders. It is possible that Garbitsch committed murders. But I do not think so."

"Why not?" Boyd said.

"They are my friends," Brubitsch said. "Even if they tell lies. They are also small children. Besides, I am not even the head of the group."

"Who is?" Malone said.

"Garbitsch," Brubitsch said instantly. "He worked in the State Department, and he told us what to look for in the Senate Office Building."

"What were you supposed to look for?" Boyd said.

"For information," Brubitsch said. "For scraps of paper, or things we overheard. But it was very bad, very bad."

"What do you mean, bad?" Malone said.

"Everything was terrible," Brubitsch said mournfully. "Sometimes Borbitsch heard something and forgot to tell Garbitsch about it. Garbitsch did not like this. He is a very inflamed person. Once he threatened to send Borbitsch to the island of Yap as a spy. That is a very bad place to go to. There are no enjoyments on the island of Yap, and no one likes strangers there."

"What did you do with your information?" Boyd said.

"We remembered it," Brubitsch said. "Or, if we had a scrap of paper, we saved it for Garbitsch and gave it to him. But I remember once that I had some paper. It had a formula on it. I do not know what the formula said."

"What was it about?" Malone said.

Brubitsch gave a massive shrug. "It was about an X and some numbers," he said. "It was not very interesting, but it was a formula, and Garbitsch would have liked it. Unfortunately, I did not give it to him."

"Why not?" Boyd said.

"I am ashamed," Brubitsch said, looking ashamed. "I was lighting a cigarette in the afternoon, when I had the formula. It is a very relaxing thing to smoke a cigarette in the afternoon. It is soothing to the soul." He looked very sad. "I was holding the piece of paper in one hand," he said. "Unfortunately, the match and the paper came into contact. I burned my finger. Here." He stuck out a finger toward Malone and Boyd, who looked at it without much interest for a second. "The paper is gone," he said. "Don't tell Garbitsch. He is very inflamed."

Malone sighed. "But you remember the formula," he said. "Don't you?"

Brubitsch shook his massive head very slowly. "It was not very interesting," he said. "And I do not have a mathematical mind."

"We know," Malone said. "You are a small child."

"It was terrible," Brubitsch said. "Garbitsch was not happy about our activities."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"What did Garbitsch do with the information?" Boyd said.

"He passed it on," Brubitsch said. "Every week he would send a short-wave message to the homeland, in code. Some weeks he did not send the message."

"Why not?" Malone said.

"The radio did not work," Brubitsch said simply. "We received orders by short-wave, but sometimes we did not receive the orders. The radio was of very poor quality, and some weeks it refused to send any messages. On other weeks, it refused to receive any messages."

"Who was your contact in Russia?" Boyd said.

"A man named X," Brubitsch said. "Like in the formula."

"But what was his real name?" Malone said.

"Who knows?" Brubitsch said.

"What else did you do?" Boyd said.

"We met twice a week," Brubitsch said. "Sometimes in Garbitsch's home, sometimes in other places. Sometimes we had information. At other times, we were friends, having a social gathering."

"Friends?" Malone said.

Brubitsch nodded. "We drank together, talked, played chess. Garbitsch is the best chess player in the group. I am not very good. But once we had some trouble." He paused. "We had been drinking Russian liquors. They are very strong. We decided to uphold the honor of our country."

"I think," Malone murmured sadly, "I know what's coming."

"Ah?" Brubitsch said, interested. "At any rate, we decided to honor our country in song. And a policeman came and talked to us. He took us down to the police station."

"Why?" Boyd said.

"He was suspicious," Brubitsch said. "We were singing the *Internationale,* and he was suspicious. It is unreasonable."

"Oh, I don't know," Boyd said. "What happened then?"

"He took us to the police station," Brubitsch said, "and then after a little while he let us go. I do not understand this."

"It's all right," Malone said. "I do." He drew Boyd aside for a second, and whispered to him: "The cops were ready to charge these three clowns with everything in the book. We had a time springing them so we could go on watching them. I remember the stir-up, though I never did know their names until now."

Boyd nodded, and they returned to Brubitsch, who was staring up at them with surly eyes.

"It is a secret you are telling him," Brubitsch said. "That is not right."

"What do you mean, it's not right?" Malone said.

"It is wrong," Brubitsch went on. "It is not the American way."

He went on, with some prodding, to tell about the activities of the spy ring. It did not seem to be a very efficient spy ring; Brubitsch's long sad tale of forgotten messages, mixed orders, misplaced documents and strange mishaps was a marvel and a revelation to the listening officers.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"I've never heard anything like it," one of them whispered in a tone of absolute wonder. "They're almost working on our side."

Over an hour later, Malone turned wearily away from the prisoner. "All right, Brubitsch," he said. "I guess that pretty much covers things for the moment. If we want any more information, though—"

"Call on me," Brubitsch said sadly. "I am not going any place. And I will give you all the information you desire. But I did not commit any murders—"

"Good-by, small child," Malone said, as two agents led the fat man away. The other two left soon afterward, and Malone and Boyd were alone.

"Think he was telling the truth?" Boyd said.

Malone nodded. "Nobody," he said, "could make up a story like that."

"I suppose so," Boyd said, and the phone rang. Malone picked it up.

"Well?" he asked.

"He was telling the truth, all right," Her Majesty said. "There are a few more details, of course—there was a girl Brubitsch was involved with, Sir Kenneth. But she doesn't seem to have anything to do with the spy ring, and besides, she isn't a very nice person. She always wants money."

"Sounds perfectly lovely," Malone said. "As a matter of fact, I think I know her. I know a lot of girls who always want money."

"You don't know this one, Sir Kenneth," Her Majesty said, "and besides, she wouldn't be a good influence on you."

Malone sighed. "How about the static explosions?" he said. "Pick up any more?"

"No," she said. "Just that one."

Malone nodded at the receiver. "All right," he said. "We're going to bring in the second one now. Keep up the good work."

He hung up.

"Who've you got in the Observation Room?" Boyd asked.

"Queen Elizabeth I," Malone said. "Her Royal Majesty."

"Oh," Boyd said without surprise. "Well, was Brubitsch telling the truth?"

"He wasn't holding back anything important," Malone said, thinking about the girl. It would be nice to meet a bad influence, he thought mournfully. It would be nice to go somewhere with a bad influence—a bad influence, he amended, with a good figure—and forget all about his job, about the spies, about telepathy, teleportation, psionics and everything else. It might be restful.

Unfortunately, it was impossible.

"What's this business about a static explosion?" Boyd said.

"Don't ask silly questions," Malone said. "A static explosion is a contradiction in terms. If something is static, it doesn't move—and whoever heard of a motionless explosion?"

"If it is a contradiction in terms," Boyd said, "they're your terms."

"Sure," Malone said. "But I don't know what they mean. I don't even know what I mean."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"You're in a bad way," Boyd said, looking sympathetic.

"I'm in a perfectly terrible way," Malone said, "and it's going to get worse. You wait and see."

"Of course I'll wait and see," Boyd said. "I wouldn't miss the end of the world for anything. It ought to be a great spectacle." He paused. "Want them to bring in the next one?"

"Sure," Malone said. "What have we got to lose but our minds? And who is the next one?"

"Borbitsch," Boyd said. "They're saving Garbitsch for a big finish."

Malone nodded wearily. "Onward," he said, and picked up the phone. He punched a number, spoke a few words and hung up.

A minute later, the four FBI agents came back, leading a man. This one was tall and thin, with the expression of a gloomy, degenerate and slightly nauseated bloodhound. He was led to the chair and he sat down in it as if he expected the worst to start happening at once.

"Well," Malone said in a bored, tired voice. "So this is the one who won't talk."

VI

Midnight.

Kenneth J. Malone sat at his desk, in his Washington office, surrounded by piles of papers covering the desk, spilling off onto the floor and decorating his lap. He was staring at the papers as if he expected them to leap up, dance round him and shout the solution to all his problems at him in trained choral voices. They did nothing at all.

Seated cross-legged on the rug in the center of the room, and looking like an impossible combination of the last Henry Tudor and Gautama Buddha, Thomas Boyd did nothing either. He was staring downward, his hands folded on his ample lap, wearing an expression of utter, burning frustration. And on a nearby chair sat the third member of the company, wearing the calm and patient expression of the gently born under all vicissitudes: Queen Elizabeth I.

"All right," Malone said into the silence. "Now let's see what we've got."

"I think we've got cerebral paresis," Boyd said. "It's been coming on for years."

"Don't be funny," Malone said.

Boyd gave a short, mirthless bark. "Funny?" he said. "I'm absolutely hysterical with joy and good humor. I'm out of my mind with happiness." He paused. "Anyway," he finished, "I'm out of my mind. Which puts me in good company. The entire FBI, Brubitsch, Borbitsch, Garbitsch, Dr. Thomas O'Connor and Sir Lewis Carter—we're all out of our minds. If we weren't, we'd all move away to the Moon."

"And drink to forget," Malone added. "Sure. But let's try and get some work done."

"By all means, Sir Kenneth," Her Majesty said. Boyd had not included her in his list of insane people, and she looked slightly miffed. It was hard for Malone to tell whether she

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

was miffed by the mention of insanity, or at being left out.

"Let's review the facts," Malone said. "This whole thing started with some inefficiency in Congress."

"And some upheavals elsewhere." Boyd said. "Labor unions, gangster organizations—"

"Just about all over," Malone said. "And though we've found three spies, it seems pretty obvious that they aren't causing this."

"They aren't causing much of anything," Boyd said. "Except a lot of unbelieving laughter farther up the FBI line. I don't think anybody is going to believe our reports of those interviews."

"But they're true," Her Majesty said.

"Sure they're true," Boyd said. "That's the unbelievable part. They read like farce—and not very good farce at that."

"Oh, I don't know," Malone said. "I think they're pretty funny."

"Shall we get back to the business at hand?" Her Majesty said gently.

"Ah," Malone said. "Anyhow, it isn't the spies. And what we now have is confusion even worse compounded."

"Confounded," Boyd said. "John Milton. 'Paradise Lost.' I heard it somewhere. . . ."

"I don't mean confounded," Malone said. "I mean confusion. Anyhow, the Russian espionage rings in this country seem to be in as bad a state as the Congress, the labor unions, the Syndicates, and all the rest. And all of them seem to have some sort of weird tie-in to these flashes of telepathic interference. Right, Your Majesty?"

"I . . . believe so, Sir Kenneth," she said. The old woman looked tired and confused. Somehow, a lot of the brightness seemed to have gone out of her life. "That's right," she said. "I didn't realize there was so much of it going on. You see, Sir Kenneth, you're the only one I can pick up at a distance who has been having these flashes. But now that I'm here in Washington, I can feel it going on all around me."

"It may not have anything to do with everything else," Boyd said.

Malone shook his head. "If it doesn't," he said, "it's the weirdest coincidence I've ever even dreamed about, and my dreams can be pretty strange. No, it's got to be tied in. There's some kind of mental static that is somehow making all these people goof up."

"But why?" Boyd said. "What is it being done for? Just fun?"

"God only knows," Malone said. "But we're going to have to find out."

"In that case," Boyd said, "I suggest lots and lots of prayers."

Her Majesty looked up. "That's a fine idea," she said.

"But God helps those," Malone said, "who help themselves. And we're going to help ourselves. Mostly with facts."

"All right," Boyd said. "So far, all the facts have been a great help."

"Well, here's one," Malone said. "We got one flash each from Brubitsch, Borbitsch and Garbitsch while

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

we were questioning them. And in each case, that flash occurred just before they started to blab everything they knew. Before the flash, they weren't talking. They were behaving just like good spies and keeping their mouths shut. After the flash, they couldn't talk fast enough."

"That's true," Boyd said reflectively. "They did seem to give up pretty fast, even for amateurs."

Malone nodded. "So the question is this," he said. "Just what happens during those crazy bursts of static?"

He looked expectantly at Her Majesty, but she shook her head sadly. "I don't know," she said. "I simply don't know. It's just noise to me—meaningless noise." She put her hands slowly over her face. "People shouldn't do things like that to their Sovereign," she said in a muffled voice.

Malone got up and went over to her. She wasn't crying, but she wasn't far from it. He put an arm around her thin shoulders. "Now, look, Your Majesty," he said in gentle tones, "this will all clear up. We'll find out what's going on, and we'll find a way to put a stop to it."

"Sure we will," Boyd said. "After all, Your Majesty, Sir Kenneth and I will work hard on this."

"And the Queen's Own FBI," Malone said, "won't stop until we've finished with this whole affair, once and for all."

Her Majesty brought her hands down from her face, very slowly. She was forcing a smile, but it didn't look too well. "I know you won't fail your Queen," she said. "You two have always been the most loyal of my subjects."

"We'll work hard," Malone said. "No matter how long it takes."

"Because, after all," Boyd said in a musing, thoughtful tone, "it is a serious crime, you know."

The words seemed to have an effect on Her Majesty, like a tonic. For a second her face wore an expression of Royal anger and indignance, and the accustomed strength flowed back into her aged voice. "You're quite correct, Sir Thomas!" she said. "The security of the Throne and the Crown are at stake!"

Malone blinked. "What?" he said. "Are you two talking about something? What crime is this?"

"An extremely serious one," Boyd said in a grave voice. He rose unsteadily to his feet, planted them firmly on the carpet, and frowned.

"Go on," Malone said, fascinated. Her Majesty was watching Boyd with an intent expression.

"The crime," Boyd said, "the very serious crime involved, is that of Threatening the Welfare of the Queen. The criminal has committed the crime of Causing the Said Sovereign, Baselessly, Reasonlessly and Without Consent or Let, to Be in a State of Apprehension for Her Life or Her Well-Being. And this crime —"

"Aha," Malone said. "I've got it. The crime is—"

"High treason," Boyd intoned.

"High treason," Her Majesty said with satisfaction and fire in her voice.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Very high treason," Malone said. "Extremely high."

"Stratospheric," Boyd agreed. "That is, of course," he added, "if the perpetrators of this dastardly crime are Her Majesty's subjects."

"My goodness," the Queen said. "I never thought of that. Suppose they're not?"

"Then," Malone said in his most vibrant voice, "it is an Act of War."

"Steps," Boyd said, "must be taken."

"We must do our utmost," Malone said. "Sir Thomas—"

"Yes, Sir Kenneth?" Boyd said.

"This task requires our most fervent dedication," Malone said. "Please come with me."

He went to the desk. Boyd followed him, walking straight-backed and tall. Malone bent and removed from a drawer of the desk a bottle of bourbon. He closed the drawer, poured some bourbon into two handy water glasses from the desk, and capped the bottle. He handed one of the water glasses to Boyd, and raised the other one aloft.

"Sir Thomas," Malone said, "I give you—Her Majesty, the Queen!"

"To the Queen!" Boyd echoed.

They downed their drinks and turned, as one man, to hurl the glasses into the wastebasket.

In thinking it over later, Malone realized that he hadn't considered anything about that moment silly at all. Of course, an outsider might have been slightly surprised at the sequence of events, but Malone was no outsider. And, after all, it was the proper way to treat a Queen, wasn't it?

And—

When Malone had first met Her Majesty, he had wondered why, although she could obviously read minds, and so knew perfectly well that neither Malone nor Boyd believed she was Queen Elizabeth I, she insisted on an outward show of respect and dedication. He'd asked her about it at last, and her reply had been simple, reasonable and to the point.

According to her—and Malone didn't doubt it for an instant—most people simply didn't think their superiors were all they claimed to be. But they acted as if they did—at least while in the presence of those superiors. It was a common fiction, a sort of handy oil on the wheels of social intercourse.

And all Her Majesty had ever insisted on was the same sort of treatment.

"Bless you," she'd said, "I can't help the way you *think*, but, as Queen, I do have some control over the way you *act*."

The funny thing, as far as Malone was concerned, was that the two parts of his personality were becoming more and more alike. He didn't actually believe that Her Majesty was Queen Elizabeth I, and he hoped fervently that he never would. But he did have a great deal of respect for her, and more affection than he had believed possible at first. She was the grandmother Malone had never

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

known; she was good, and kind, and he wanted to keep her happy and contented. There had been nothing at all phony in the solemn toast he had proposed—nor in the righteous indignation he had felt against anyone who was giving Her Majesty even a minute's worth of discomfort.

And Boyd, surprisingly enough, seemed to feel the same way. Malone felt good about that; Her Majesty needed all the loyal supporters she could get.

But all of this was later. At the time, Malone was doing nothing except what came naturally—nor, apparently, was Boyd. After the glasses had been thrown, with a terrifying crash, into the metal wastebasket, and the reverberations of that second had stopped ringing in their ears, a moment of silence had followed.

Then Boyd turned, briskly rubbing his hands. "All right," he said. "Let's get back to work."

Malone looked at the proud, happy look on Her Majesty's face; he saw the glimmer of a tear in the corner of each eye. But he gave no indication that he had noticed anything at all out of the ordinary.

"Fine," he said. "Now, getting on back to the facts, we've established something, anyhow. Some agency is causing flashes of telepathic static all over the place. And those flashes are somehow connected with the confusion that's going on all around us. Somehow, these flashes have an effect on the minds of people."

"And we know at least one manifestation of that effect," Boyd said. "It makes spies blab all their secrets when they're exposed to it."

"These three spies, anyhow," Malone said.

"If 'spies' is the right word," Boyd said.

"O.K.," Malone said. "And now we've got another obvious question."

"It seems to me we've got about twelve," Boyd said.

"I mean: who's doing it?" Malone said. "Who is causing these telepathic flashes?"

"Maybe it's just happening," Boyd said. "Out of thin air."

"Maybe," Malone said. "But let's go on the assumption that there's a human cause. The other way, we can't do a thing except sit back and watch the world go to hell."

Boyd nodded. "It doesn't seem to be the Russians," he said. "Although, of course, it might be a Red herring."

"What do you mean?" Malone said.

"Well," Boyd said, "they might have known we were on to Brubitsch, Borbitsch and Garbitsch—" He stopped. "You know," he said, "every time I say that name I have to reassure myself that we're not all walking around in the world of Florenz Ziegfeld?"

"Likewise," Malone said. "But go on."

"Sure," Boyd said. "Anyhow, they might have set the three of them up as patsies—just in case we stumbled on to this mess. We can't overlook that possibility."

"Right," Malone said. "It's faint, but it is a possibility. In other words,

(Continued on page 133)

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

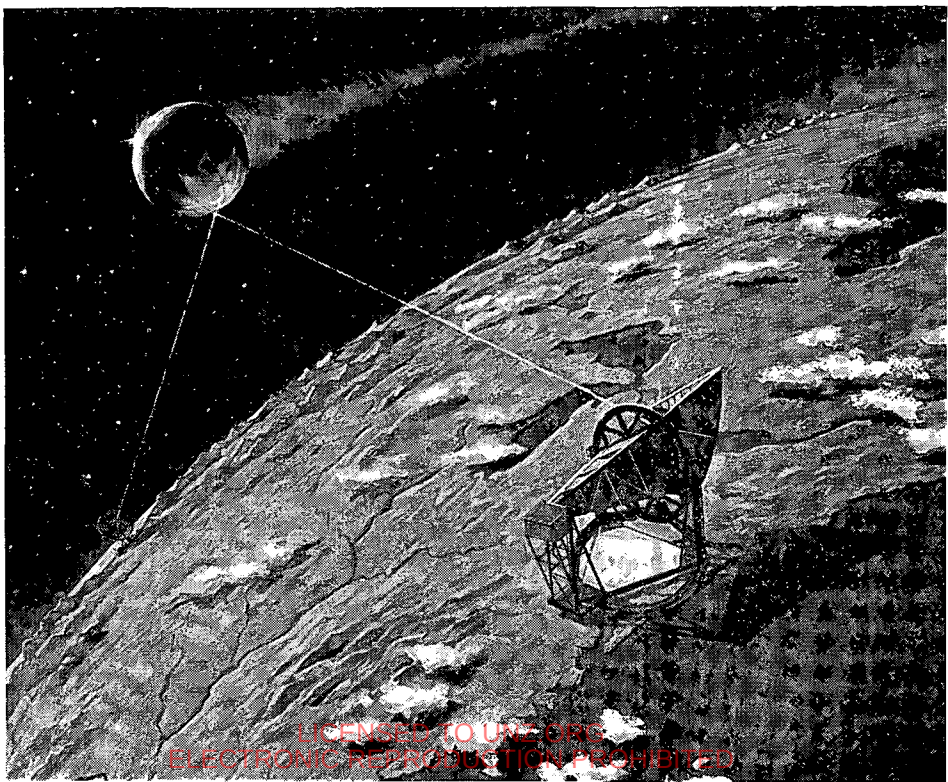
"THEY DO IT WITH MIRRORS..."

Echo I, the sateloon that went up last August, was a true First in space flight—a highly important, and much underrated First. And one that was, naturally, a United States First!

By John W. Campbell

All photographs Courtesy of Bell Telephone Laboratories

Artist's diagram of telephone transmission via space satellite. In foreground is the "horn antenna," a highly directional receiver designed and constructed by Bell Laboratories. Antenna on left is located at the Jet Propulsion Laboratory at Goldstone, Calif.; a similar antenna is at Holmdel, N. J.



LICENSED TO UNT-CRC
ELECTRONIC REPRODUCTION PROHIBITED

RUSSIA was first into space, with Sputnik I. Russia will, in all probability, be first to get a man into space. (Quite possibly before this article appears on the newsstands.) Russia has one great advantage over the United States in accomplishing that sort of thing—the Soviet way of life *is* advantageous in one respect. It's a pattern that is, as of 1960, pretty much of a pioneer way of life—much as ours was in, say, 1880. The characteristic of pioneer philosophy is, practically by definition, "Let's take a chance and try it!" That's a great help in achieving high-risk firsts.

In 1880, the people of the United States had a philosophy that permitted a man to risk his neck if he were fool enough to want to. If he wanted to try going over Niagara in a barrel—well, it was his fool neck, wasn't it? So it got broke? So what—he wanted to do it, didn't he?"

Today, in Russia, if a nut wants to risk his neck, people will watch with interest. Russian Roulette is perfectly O.K.—if some nut wants to play it, the rest of the Russians present will watch with interest. It's his brains he's going to blow out, and if he wants to do it . . . it's his business.

Today, in the United States, the police would be forced, by popular feeling, to arrest anyone planning on going over Niagara in a barrel. Anyone publicly avowing his intent to play Russian Roulette would also be arrested and taken off for psychiatric investigation.

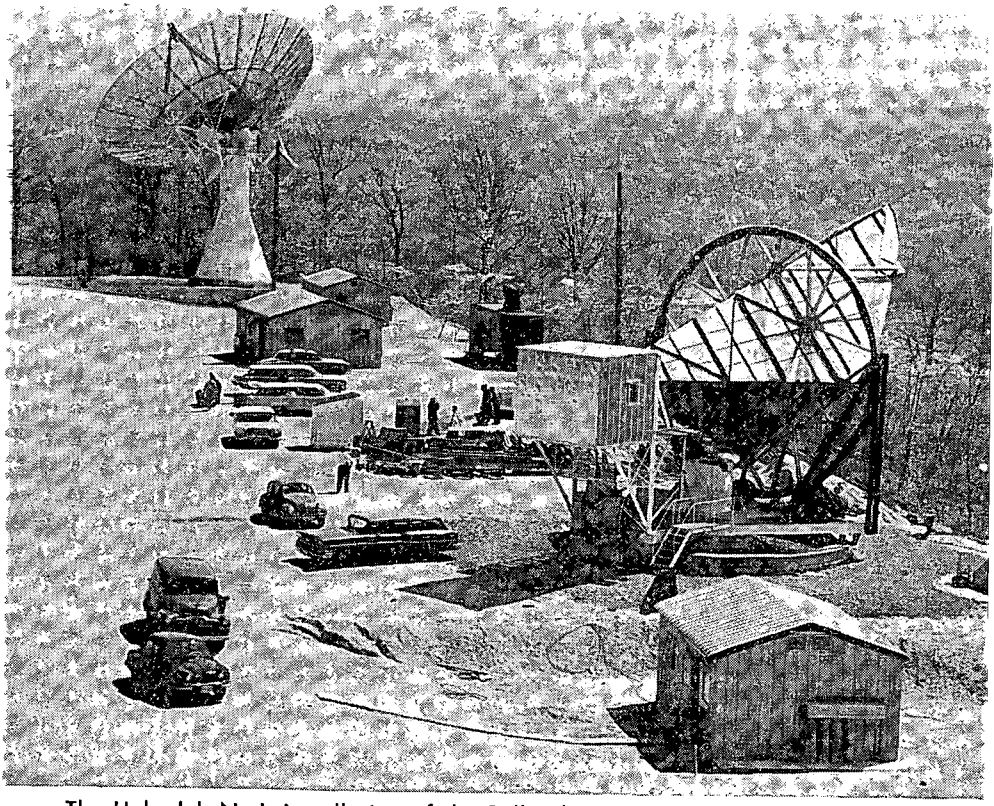
Consider the implications of that attitude with respect to the problem of getting a man into space. If Russia develops a technique with a fifty-fifty chance of success, they can not only find a volunteer eager to make the try—as we could in this country, too—but their officers can help him to take the risk, with full popular approval.

In the United States, if we have a fifty-fifty chance of getting a man into space and back, the volunteers will be easy to find—but finding officers to approve the effort would be something else. The United States public would be shocked at the thought of risking human life on such a dangerous mission. Wherefore it can't be attempted.

The pioneer philosophy in Russia means they can try getting a man into space and back while the conditions are still pretty crude. The Russians, also, were able to take a risk and start working toward space flight sooner, with more pioneering spirit, than the United States could; that's why they had a million-pound-thrust rocket engine years before we hope to have one. They stuck out their necks farther and sooner; naturally, they got ahead. It's not that their scientists have done better work—it's that their philosophy allowed their scientists to start doing the work sooner. They accept risks that our people won't.

Once the breakthrough into space was made, the risk situation shifted; we were, after Sputnik I, in the position of taking a huge risk if we did *not* develop space technology. The

LICENSED TO USE BY
ELECTRONIC REPRODUCTION PROHIBITED



The Holmdel, N. J. installation of the Bell Labs Echo project. The special horn antenna at right, unlike the conventional radio-telescope type microwave "dish" at left, allows full use of the three-stage maser receiver.

low-risk high-security philosophy of the present United States culture then made it possible for our scientists to start doing the job that should have been done sooner.

They've done very well indeed, too. Russia, starting with the great advantage of a million-pound-thrust engine, has, throughout the last few years of space exploration, been able to put much more massive equipment into space. In this phase of development of space technology, however, the United States has had a very real and massive advantage; despite the fact that Russia can put about three times as many pounds of equipment into space as can we, the United States has brought back a hundred times as much "bacon" from space! We have brought back far more information from space than the Russians have been able to.

The United States advantage lies in three areas: 1. Information Theory was invented here, and has been far more highly developed here. 2. Min-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

iaturization of equipment has been developed here to a far greater extent. 3. Computer development in the United States is ahead both in quality and—even more—in quantity.

These factors have led to sending devices into space that, though much smaller and lighter, were able, by reason of miniaturization, to pick up more data. The development of information theory led us to more efficient techniques of data-encoding and transmission. We can "miniaturize" a message—get more meaning out of a given number of signals.

Anyone with eyes can see a star; the same light is available to anyone who looks. But an astrophysicist, by applying highly developed techniques of data analysis and interpretation, can read out of that incoming light, the most astonishing amount of understanding. The peasant sees a star—and that's all. The difference lies in the ability to extract meaning from a given message.

By development of data analysis techniques, the United States has been able to get more meaning from the data sent back by space probes, and, by reason of more highly developed miniaturization, our far lighter probes have transmitted far more data per pound of equipment.

Russia's million-pound-thrust engine is, however, an absolute advantage when it comes to lifting into orbit something that cannot possibly be miniaturized. Russia can put a man into space, where we would be limited to a child; miniaturization of human beings is not possible.

It's also obvious that, if we could put ten thousand pounds of miniaturized equipment into orbit, instead of being limited to about half that, we'd be able to get a darned sight more data than we can now. Our long-range space probe toward Venus conked out too soon; the storage batteries that were to power the 150-watt transmitter failed. If we'd been able to put twice as much mass out there, we could have done a much better job . . . because storage batteries are something that can't be miniaturized. Reason: the quantity of chemical energy in a given mass of nickle oxide and cadmium metal is an absolute of the Universe; you can't pack more per pound into it. It can not be done—and the problem afflicting the space probes is inadequate power supply. A large part of Russia's success in the Moon picture probe stemmed from the fact that their probe could carry more watt-hours of electric power to operate equipment, and more pounds of reaction-mass to use in the stabilization jets that oriented the probe.

The third advantage of the United States that, in many areas of space technology offsets the high-thrust motor advantage of the Russians, is the development of computer technology.

Actually, Russia could not effectively use the more efficient data-collecting devices the United States has been putting into space. Suppose you are trying to learn something about chemistry. One instructor sits down with you, and starts explaining matters to you. But you're in a hurry, so

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

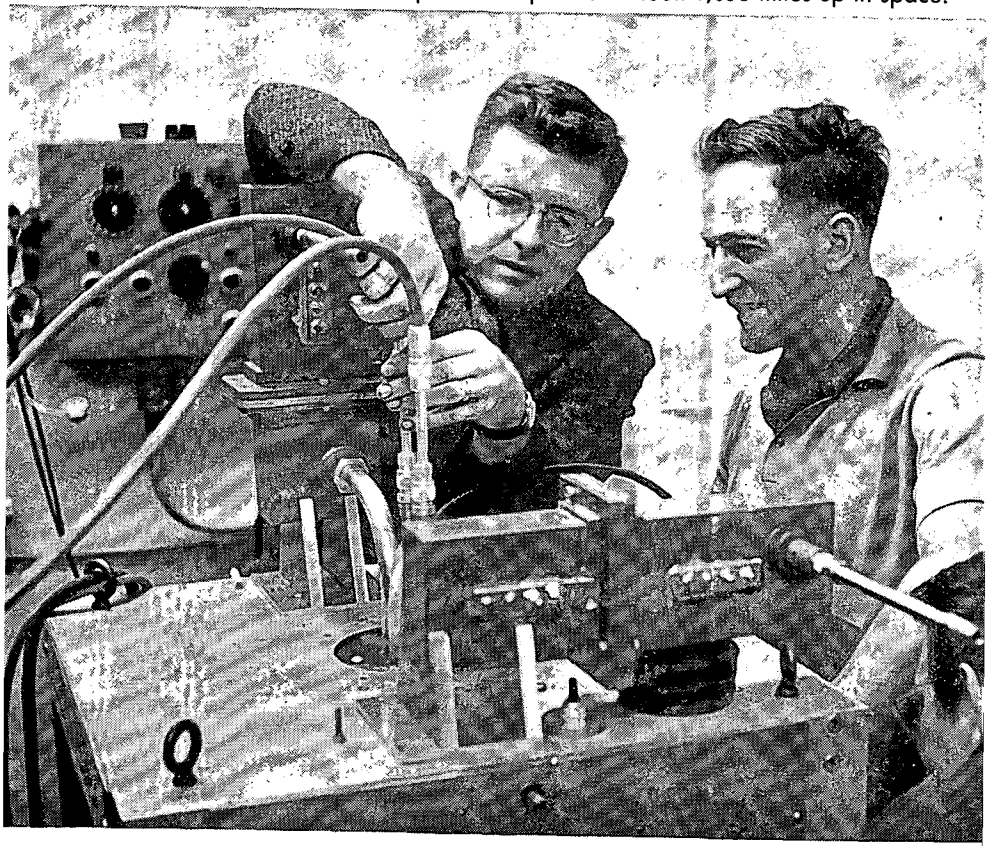
you have two, then three instructors come in and explain things. You will, perhaps, learn faster with three instructors talking at once, than with only one?

You would learn less, of course; the data being fed in couldn't be absorbed and correlated into understanding. It would simply cause confusion—be "noise" instead of "signal."

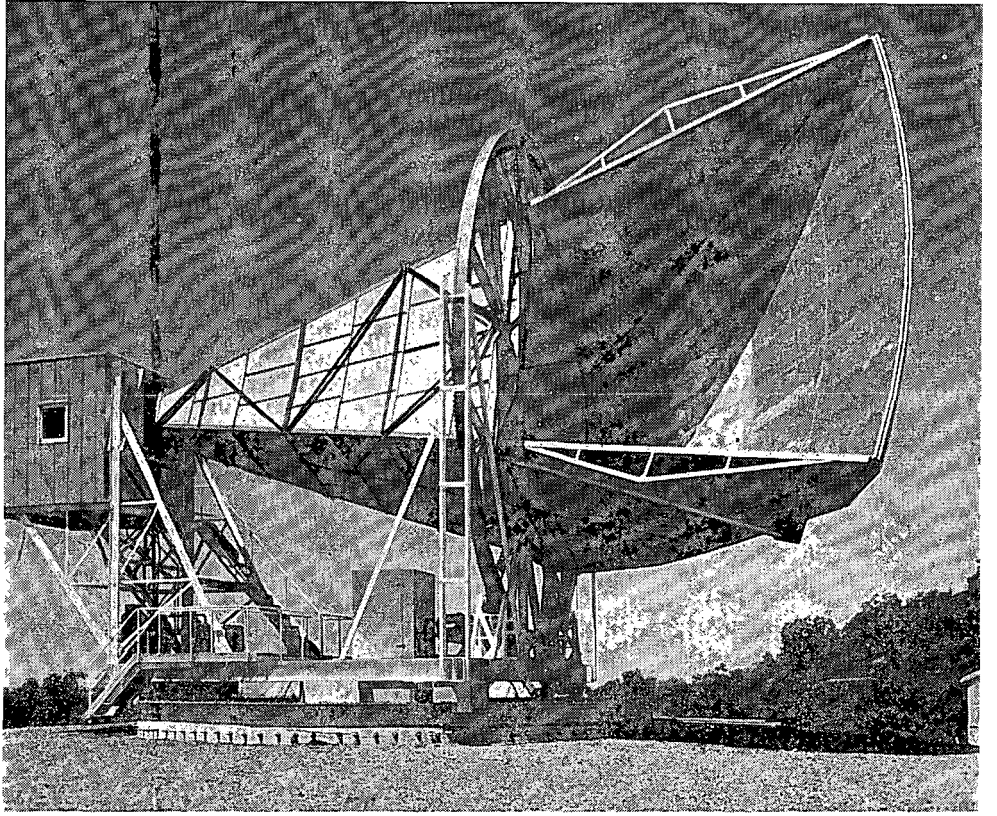
The maximum rate at which learning can occur is limited by the rate at which incoming data can be processed, correlated, and converted to understanding.

If you have started studying a foreign language, it seems to you that the native speakers of that language speak at a tremendous speed. You've learned enough of the language to be

R. W. DeGrasse, left, and H. E. D. Scovil working on the maser amplifier at Bell Labs. The maser uses a ruby crystal, invisible in its bath of liquid helium at 4°Absolute. Rubies are cheap . . . compared to a few pounds of plastic balloon 1,000 miles up in space.



LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



The development of the hyper-sensitive maser amplifier made the standard dish type radio-telescope antenna inadequate; we now listen to sounds from space with this super-collossal ear-trumpet!

able to recognize certain syllables, some words, but can not, as yet, correlate words and meanings quickly. Later, when your data-correlation mechanism has developed, the native speakers appear to be speaking at a quite moderate rate.

The space probes are speaking a foreign language—an extraterrestrial language. The problem of processing the raw data is tremendous. Every rocket shoot yields miles and miles of data recorded on magnetic tape and photographic film. The shoots are tracked by radar, doppler radar, optical tracking camera, infrared monitoring, telemetering channels, optical observers, and every other device they've been able to dream up. The sheer data mass accumulated from every rocket

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

shoot would require, for its analysis, batteries of mathematicians, spending many months. Trying to find significant new data from that vast welter of insignificant routine data alone would require many months of human effort.

Meanwhile, twenty new shoots would have added to the already overwhelming flood.

The flood is so great that even with the electronic computers, and automatic data processing machinery the United States has, our data-analysis work is far behind the data-gathering.

What good would more space probes do Russia, if they can't process the data from the probes they've already sent out? Again and again, the United States has been first to report some new feature of space. The discovery of the Van Allen radiation belts is the best known—but there have been scores of critical discoveries that have come from United States data analysis.

One of the reasons Russia has been reluctant to publish the data they have brought back from space is that, inevitably, the United States would be able to do more with their data than they can themselves. We have vastly more data-processing machinery.

Chinese astronomers, some nine hundred years ago, reported a new star in a certain place in the skies. For months the new star was the brightest star in the heavens, they noted.

O.K.; they had the data—but modern astrophysicists have gotten enormously more understanding from *their* data than the old Chinese astronomers ever did! The star was, evidently, a nova; if it remained enormously brilliant for months, rather than weeks, it must have been a supernova. Its reported location can be checked; if it was brighter than Sirus or even Venus, then it must have been relatively close. Even a supernova dims with interstellar distance! Data processing rapidly located the missing star; it's now known as the Crab Nebula. We have learned more, from the old Chinese data, than the original observers knew.

The United States advantages are comparable to the advantages an adult has over an adolescent; the kid is quicker and more agile and frequently stronger—but the adult has greater ability to extract meaning from information, and is apt to outthink the kid.

The difficulty is that, from the viewpoint of the man in the street, ten tons in orbit sounds a darned sight more important than a 150-watt transmitter operating from thirty million miles out.

But, from the viewpoint of the scientist, information from thirty million miles out of the Earth's magnetic, electric, and gravitational fields is considerably more revealing.

With Echo I, the United States has achieved a First of a type that will never be really popular with the man in the street. Officially, the United States is not a socialist-communist nation, does not subscribe to the socialist communist philosophy, but maintains that free enterprise and capital-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

ism are superior. This may be what we *say* . . . but it's surprising, perhaps, to note the extent to which the profit motive and economic realities are damned by American news media. If you hadn't been told so many times, you'd almost think the nation operated on a socialist-communist philosophy that considered profit motive evidence of evil capitalist exploiters.

Echo I is a critically important First; it's the First space project deliberately undertaken for economic advantage, for *profit motives*—to make money.

As has been said in these pages previously, the difference between a crackpot and a genius is that a genius makes money at it—i.e., that a genius does things that are economically valuable, and hence self-sustaining. A crackpot's ideas die with him, because they don't initiate a self-sustaining chain reaction, such that other human beings want to perpetuate and share them.

Every space satellite, up to Echo I, was a crackpot idea; it wasn't profitable, nor did it visibly lead to anything profitable.

When Goodyear was trying to vulcanize rubber, he had a crackpot insistence that his experiments would lead to wealth. His family was broke, he wasn't able to provide a decent living for his wife and children, because of his dedication to his crackpot notion that rubber could be made stable. If he hadn't had the lucky accident of dropping his stinking mess of sulfur and rubber on the stove, he probably would never have gone down in history as a genius—i.e., he probably never would have made a fortune at it.

The only way space flight can ever hope to continue is *to make money at it.* Simply put in more eggheadish terms, no project which is economically unsound can be continued indefinitely.

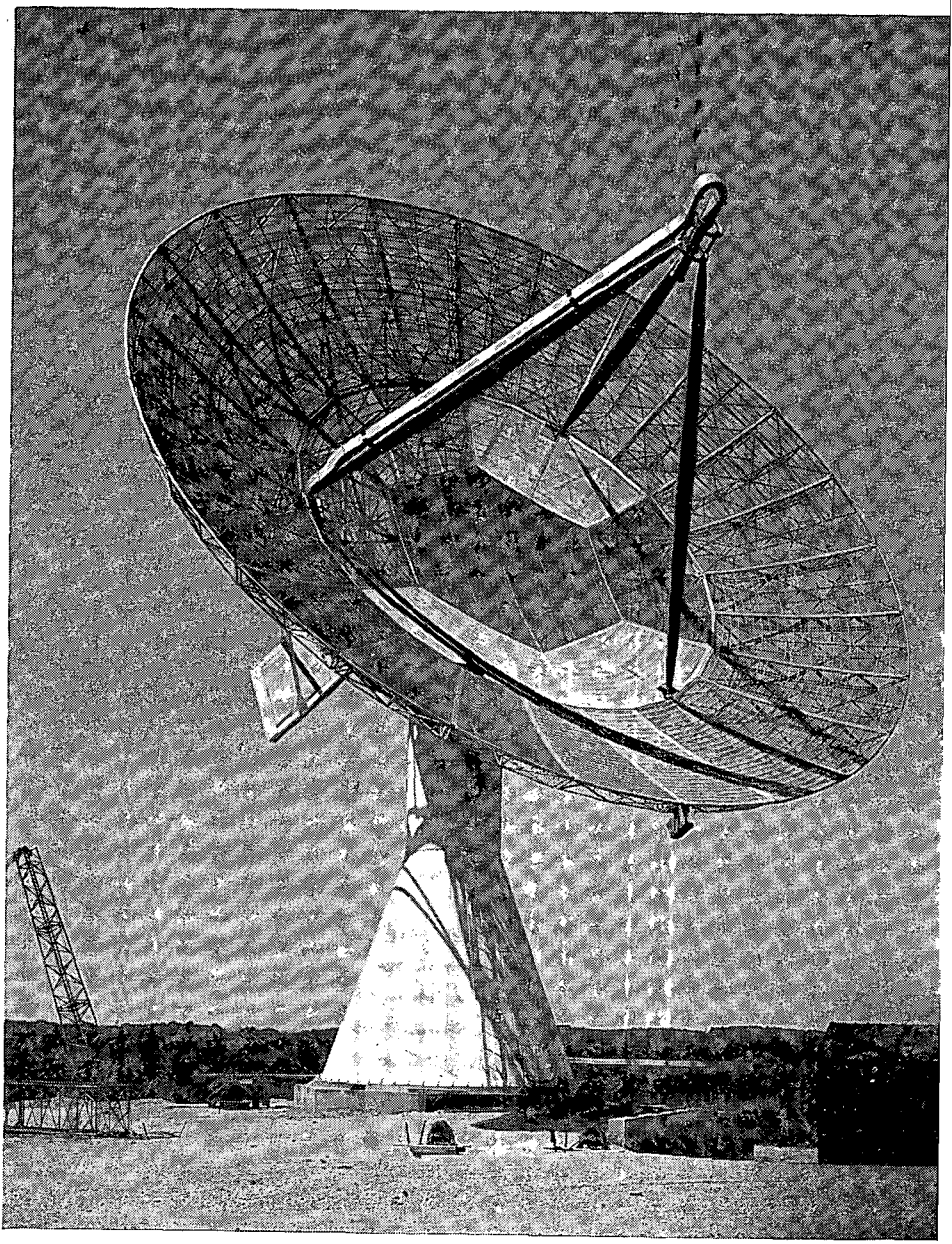
The future of space flight is now assured. Not by putting a man in space, but by putting a sateloon in space, and bouncing a message from Goldstone, California, to Holmdel, New Jersey, via Echo I.

An engineering utility, the Bell Telephone System, now has a long-term motive—a profit motive—for maintaining the development of space vehicles. Echo I is the first economically rewarding use of space.

It is, incidentally, strictly an "applied science fiction" system, originated by and directed in its development by Dr. John R. Pierce, Director of Research, Communications Principles, at the Bell Telephone Laboratories, and familiar to long-time readers of Astounding-Analog both for stories under his own name, and for articles under his J. J. Coupling pseudonym.

The now-more-or-less-conventional style of microwave dish radio-telescope antenna serves adequately for the Holmdel transmitter antenna system, where the extreme front-to-back energy ratio is not essential.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



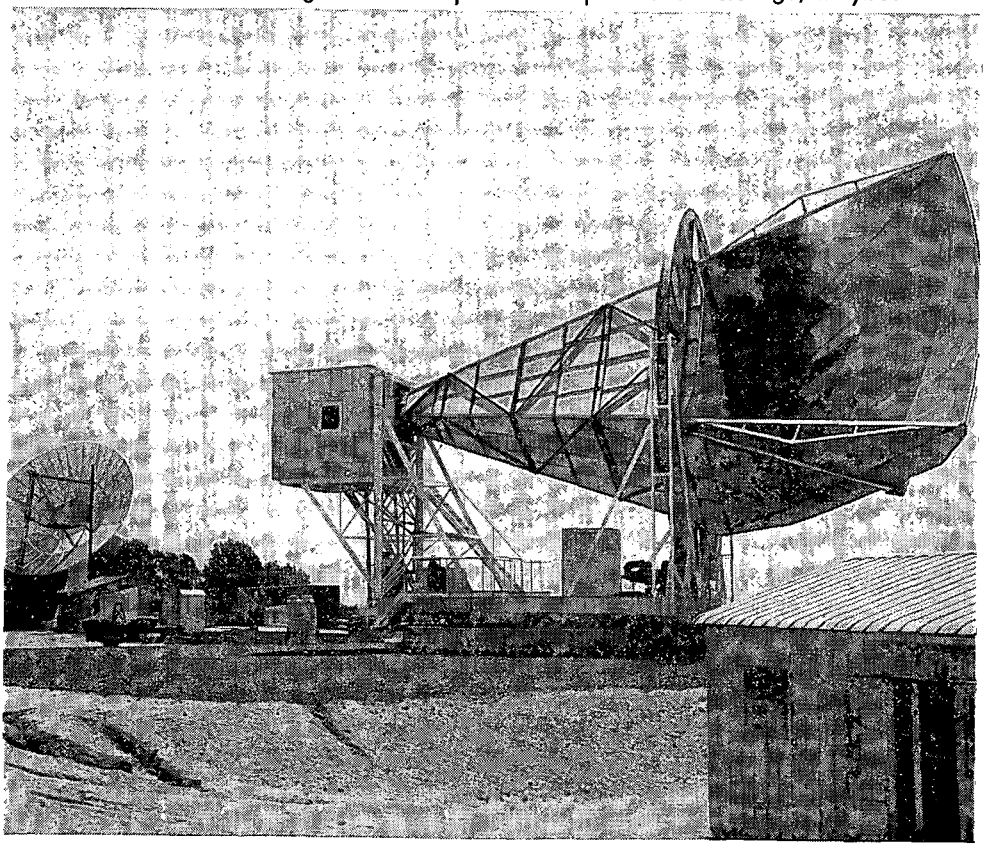
"THEY DO IT WITH MIRRORS . . ." 91

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

The problem which the Bell System is seeking to solve with the Echo sateloon system is one of those highly technical problems that nobody ever appreciates unless he's caught in the squeeze between what other people demand, and what the laws of the universe allow.

The first transoceanic telephone link was established across the Atlantic in 1927; the service has increased in both quantity and quality since then. In 1960, there were fifty-seven circuits from United States to England, twenty-one to France, nineteen to Germany, eight to Italy, forty-

The horn and the dish at Holmdel, N. J., are both computer-controlled to follow Echo across the sky. Presumably the maser amplifier-receiver is in the outrider shack at the end of the horn; what's in the oversize refrigerator isn't specified. Liquid helium storage, maybe?



LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

three to Hawaii, eight completely across the Pacific to Japan, and two to Australia.

Many of the transatlantic circuits are, now, in telephone cables.

But compare these with the number of links between land-linked cities! It's farther from New York to Los Angeles than to England—but there are eight hundred fifty telephone circuits to Los Angeles from New York; between New York and Chicago there are more than twenty-six hundred!

The number of transatlantic circuits has doubled in the last four years—and that makes the transoceanic links only about one half as inadequate as they were in 1956.

The difficulty is one of those laws-of-nature jams; the only radio frequencies that can be relied on to span the Atlantic are the relatively low-frequency group below about fifteen megacycles. These will span the Atlantic fairly reliably . . . and they go all over the Earth, bouncing back and forth between the ionosphere and the Earth itself. The result is that if any one station anywhere on the planet uses a particular frequency channel, no other station anywhere on Earth can depend on being able to use it without interference.

The radio-frequency spectrum is a natural resource which, like the atmosphere, must necessarily belong to all the peoples of the world. We've all got to use the same radio-frequency medium.

This means ships at sea, commercial radio-telegraph, short-wave broadcast stations, Army, Navy and Air Forces of the world, commercial airlines, radio amateurs—everybody on Earth who wants to get a message any distance must use the same narrow channel of communication.

The television stations, you'll notice, are all allocated channels well above that fifteen megacycle band. The frequencies up as high as thirty megacycles are sporadically and unreliably usable for long-distance communication; they're particularly frustrating, because, when the ionosphere weather happens to be just right, they're superior to any of the more conventional channels. As a ham, I've talked with another ham eleven thousand miles away around the Earth, with clear, good-quality telephone communication, using only thirty-five watts of radio-frequency energy. When, that is, the ionosphere was *juuuuust* right. On the other hand, I've used the legal maximum of one thousand watts on twenty-nine megacycles trying to push a signal from Westfield, New Jersey to Easton, Pennsylvania, and not been able to maintain contact!

The channels above fifty megacycles are "horizon limited" . . . except for freak ionosphere conditions. Occasionally, a highly ionized cloud will form in the extreme upper atmosphere, and as an ordinary cloud reflects the light of a searchlight turned on it, so these upper-atmosphere ion clouds will reflect a fifty-or-higher megacycle beam. That will lead to freak reception of a distant television station, or such feats as

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

amateurs, using one hundred forty-five megacycle band, sending signals a thousand miles or more around the Earth.

It would be simple enough, electronically, to establish a TV link across the Atlantic so that the Europeans could have the benefit of American Adult Westerns and wrestling matches. The slight difficulty is purely legalistic; a television channel requires a band width of five megacycles. The entire width of the usable transatlantic band is about twelve megacycles, so a single transatlantic TV channel would simply require that approximately one half of all the radio communications of the planet be shut down, while the grunt-and-groan artists display their skills. Airlines, shipping interests, armed forces, and various others insist that their communications are more important.

But people on both sides of the oceans demand TV communication. The Olympic Games were in Rome this year; with TV linkage, we'd have been able to watch. The Winter Olympics were in California; with TV linkage, Europe could have watched.

TV is carried across the continent via either coaxial cables, or microwave links; ordinary wires cannot handle the five megacycle bandwidth needed for TV signals, for a fairly understandable reason. Since five megacycles is a short-wave radio frequency, when a signal involving five megacycle frequencies is put on an open wire, the wire is, for a frequency of that order, an antenna—it simply radiates off the wire into space.

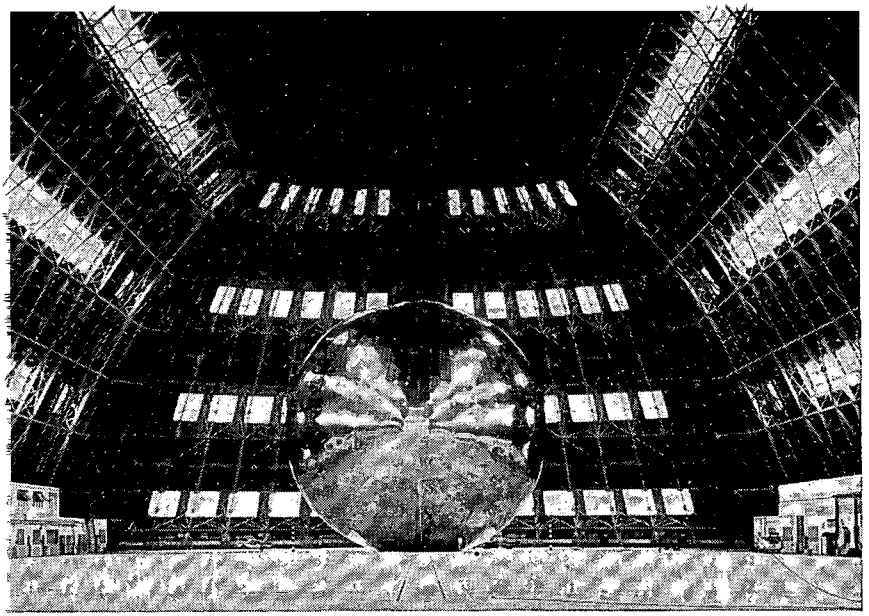
Only the enclosed wire of a coaxial cable can keep a TV signal on wire. Microwave links are simply kilomegacycle transmitter-receiver pairs set up on towers on hills, at approximately thirty-mile intervals, across the continent. The signals are bounced along from A to B to C to D . . . from Los Angeles to New York. Each relay tower listens to the message from the preceding relay, amplifies it, and retransmits it to the succeeding relay.

To handle the five megacycle bandwidth of a TV signal, a transmitter must use a broad-band transmitter which can transmit all frequencies between $x - 2\frac{1}{2}$ and $x + 2\frac{1}{2}$, where x is the nominal frequency of the station in megacycles. If x were five megacycles, in other words, the transmitter would occupy all frequencies between 2.5 and 7.5 megacycles.

This is a strictly arithmetical business; it's adding and subtracting—*not* multiplying. To handle the same five megacycle TV signal at three thousand megacycles, the swing would be from 2,997.5 to 3,002.5 mc. There are plenty of five megacycle channels between three thousand and six thousand megacycles, enough to establish all the TV signal links anyone is apt to need in the immediate future.

The difficulty is that frequencies of that order don't bounce from the ionosphere—they take off from the transmitter in straight lines, and keep going that way. They leave Earth

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



One of the Echo-style balloons looks big on Earth. You have to look closely to see the man and the trucks near it. But note that in this picture, you do NOT see Echo . . . but distorted images of the surrounding walls!

tangentially, headed for the wild black yonder of interstellar space.

The solution to the whole problem was easy to state: we need a reflector, or reflectors, far enough above the Earth's surface to allow us to bounce microwave signals from A to Reflector to B, even when A and B are several thousand miles apart on the Earth.

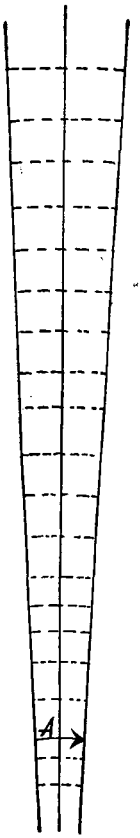
The statement was easy . . . but the solution isn't quite so neat as it may at first sound!

For instance: you probably went out some evening last August, looked up, and saw the brilliant point drifting across the sky among the stars, and said, "There! I see the satellite!"

Friend, you were wrong. You did not see the satellite. Echo I is an invisible satellite. If you had a real spaceship, with a true space drive, capable of unlimited maneuverability, and were sent out to find Echo, using strictly visual means . . . you'd never find the thing. It's completely invisible.

You have around your own home a number of invisible objects—tangible, solid objects, but only to the extent you can't see them are they what you paid for. You can see finger smudges on them, or the frame around them—but you never see a mirror. You see what's reflected in it, and you can see its edges, where the mirror-effect ends. Echo, however, be-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



The tightness of a beam of radiation can be expressed either in terms of the angle between the boundaries, the angle A, or in terms of the radius of curvature of the "wave fronts" in the ray.

ing a spherical mirror, is "finite but unbounded" in that the mirror-effect has no edges. If you went out into space to find it, being a mirror, all you'd see, when looking right at it, would be space, of course—star-strewn space.

When you looked at Echo last August, you looked *toward* it, but *saw* the Sun—which is the characteristic of any mirror, of course. However, since Echo is a spherical mirror, the size of the image of the Sun, as seen in Echo, is (1) much smaller than the image of the Sun seen directly, and (2) very much smaller than Echo itself. If you made the mistake of trying to use a telescope or binoculars to look at Echo, hoping to see it larger, you wasted time and energy; if Echo were white, but not a mirror, it would be illuminated by the Sun, and a telescope would allow you to see Echo. Being a mirror, it's not illuminated, and you can't see its size.

Official statements say that Echo appears seven times as bright as Polaris, which is a second magnitude star. Seven times is approximately two magnitudes, so Echo appears about equal to Canopus—a really bright star.

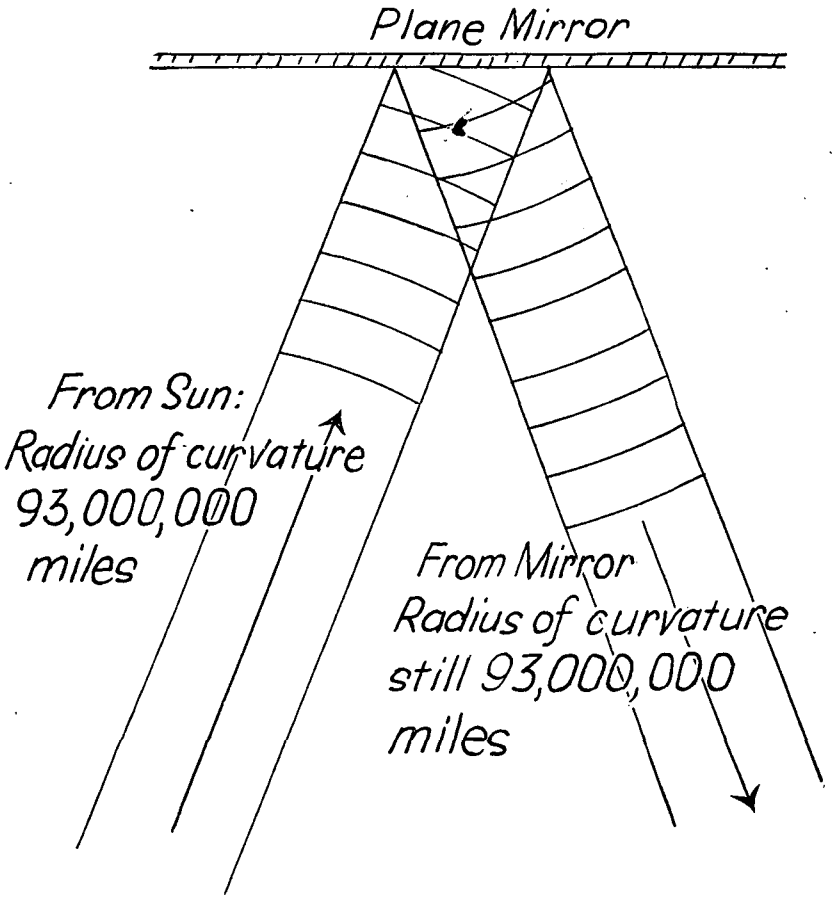
But we're actually looking at the Sun's radiation; we must, then, think in terms of the fact that the Sun, as seen from Earth, has a magnitude of — 27. To reduce that to about zero magnitude, the Sun would have to be moved over a light-year out into space. At one parsec, thirty-three light-years, the Sun would be a 4.5 magnitude star.

No ordinary telescope would do much for showing the disk of the Sun at a distance of a light-year or so —and that's what you're working with, effectively, when you try to see the image as reflected in Echo. Echo's a spherical mirror—which diverges, scatters, any radiation striking it. In effect, the radiation that reaches Echo from the Sun is a very, very tight-beam ray; it's only one hundred feet

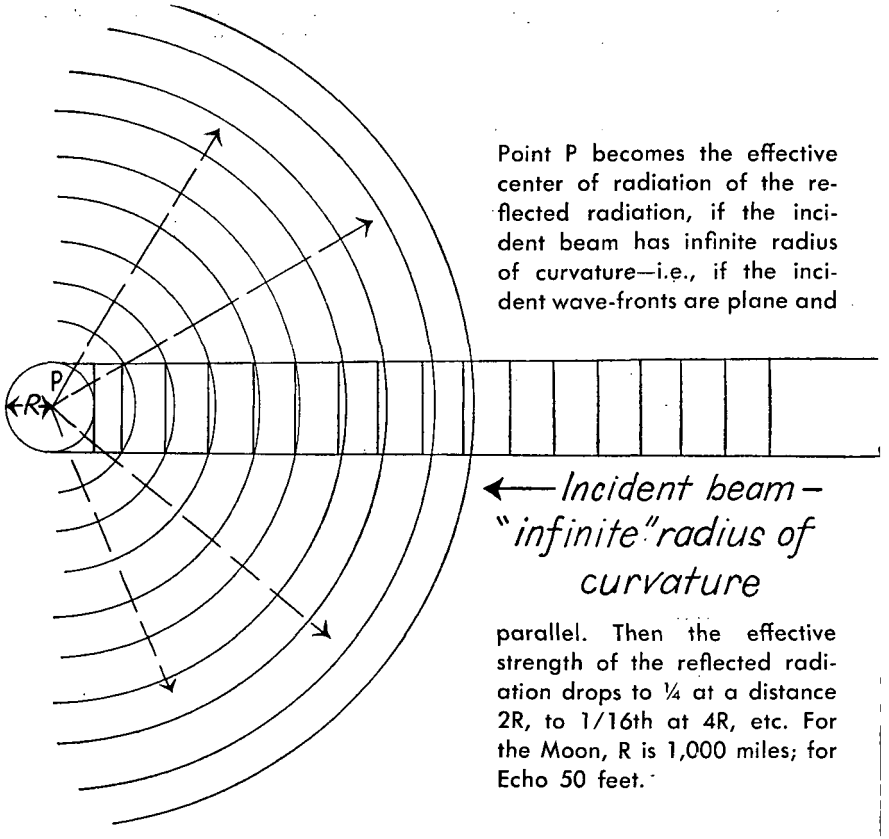
LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

in diameter, after traveling one hundred million miles or so—and a beam that maintains a diameter that tight over that distance would be *really* a tight-focused beam! After reflecting from Echo, however, that tight beam is scattered through 180° of solid angle—in a spread-out broadcast.

Now if Echo were a plane mirror, at just precisely the exact angle necessary for you to see the Sun reflected, you'd see the Sun looking just as it does when seen direct—the extra two thousand miles added on to the one hundred million from Sun to Earth wouldn't be noticeable. Echo's diverging effect is potent enough to reduce the immense radiation intensity of the Sun from —27 magnitude to zero.



LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



Point P becomes the effective center of radiation of the reflected radiation, if the incident beam has infinite radius of curvature—i.e., if the incident wave-fronts are plane and parallel. Then the effective strength of the reflected radiation drops to ¼ at a distance 2R, to 1/16th at 4R, etc. For the Moon, R is 1,000 miles; for Echo 50 feet.

With that firmly in mind . . . now consider what happens when not the stupendous blast of Solar radiation is considered, but the output from a microwave transmitter! If it can reduce the Sun to a star . . . what does it do when it reflects the radiation from a ten kilowatt microwave transmitter?

The answer is, of course, it reduces that radiation intensity in like proportion. From the Jet Propulsion Laboratories in Goldstone, California, a tightly-focused beam of two thousand three hundred ninety megacycle microwave radiation shoots up to hit Echo. Echo reflects it all right . . . but in all directions. A certain minute fraction of that reflected energy gets back down to Earth at Holmdel, New Jersey, where the Bell Labs receiving-installation picks it up.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

The total energy received at Holmdel is one one-billionth of a microwatt.

A penlite type flashlight bulb, ten thousand miles out in space, would yield about the same amount of energy at Earth's surface.

This is not what an engineer would like to have by way of a received signal. Ten kilowatts in; one micromicromilliwatt out.

The problem of picking up that signal, dusting it off, cleaning out the noise, boosting it up, and turning it into a useful communication is not precisely an easy task. There's space-noise background; there are evidences that there really *are* winds that blow between the worlds—and those winds are ion-clouds that hiss, spit, crackle and pop in the radio-frequency spectrum. Colliding galaxies two hundred million light-years away deluge the universe with radio noise. There are man-made noise sources on Earth and in the ionsphere. But there's something even trickier . . .

The device used for receiving the signal is known as a "three-level maser"; no radio tube or transistor can begin to approach the required low-noise level—for all ordinary amplifiers generate noise themselves. Most of the hiss you hear in an ordinary FM receiver, when it's not tuned to a station, is due to electrons frying off the cathode of the first tube, and bouncing around inside on plates, grids, and structure members in the tube. That immense roar of noise energy—many, many micromicromilliwatts!—would utterly drown out the signal from Echo.

The three-level maser is another "applied science fiction" gadget; it is a ruby crystal immersed in liquid helium at 4° Absolute. Where ordinary amplifiers are supplied with DC power, which is controlled by the incoming signal, a maser is supplied with one kind of RF power, while the incoming signal controls that. The whole equipment operates at near absolute zero, so that the pop, crackle, and hiss of molecules moving around under thermal agitation won't interfere.

So sensitive is the Bell Labs pickup system that the *microwave radio* radiation—*not* the infrared, but the radio-frequency radiation—from a body at 25° Absolute can be detected!

This led to new problems; the Earth itself is at a temperature of roughly 300° A—so the input antenna of the receiver must not be exposed to the roaring radiation from rocks, earth, trees, et cetera Since radiation output increases nearly as the fourth power of temperature, the Earth radiates noise ten thousand times stronger than the noise-level of the receiver itself.

The usual antenna system for microwave work is the now-familiar microwave dish. At Goldstone, a single-stage maser amplifier, not as sensitive as the Holmdel unit, is used, and a sixty-foot dish is used as the pickup device; at Jodrell Bank, in England, where Holmdel transmissions via Echo have been picked up, the giant

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

two hundred forty foot radio-telescope dish has been used.

But the dish, while very much more sensitive along the axis of the paraboloid, is still sensitive, to some degree, at other angles, and, very slightly, directly backward. Some pick-up can enter from the back of the lattice-work dish.

With the immense sensitivity of the Holmdel receiver, that extraneous radiation was intolerable; a totally new type of pickup unit, the microwave horn, had to be designed and fabricated.

The United States has invited the whole world to avail themselves of the Echo satellite for communications test experiments—a somewhat gratuitous gesture, since, quite obviously, there wouldn't be any means of preventing anyone who wanted to bounce energy from it from doing so. But inasmuch as ten-kilowatt continuous power output microwave transmitters are not a dime a dozen—radar transmitters put out up to ten megawatts, but only in extremely short bursts, not as a continuous stream—there aren't many on Earth. And, to date, the only installations capable of receiving the reflected energy from Echo that have reported in are Jodrell Bank, with its immense dish, and a French installation that picked up the signal, but couldn't get the message from it. I.e., they knew they were getting the reflected signal, but couldn't clean it up enough to read.

Echo I, however, has served its purpose well; an engineering-economic system, one that was intended for immediate, money-making application, has been tested, and it has been shown that the thing can be done.

Echo sateloons are expensive, and their service life is limited—part of the Echo project's job is determining the service life of a 100′ aluminized plastic sateloon. To make a workable and reliable communication channel, some thirty or more sateloons would be required, in continuous passage over the Earth.

In addition, highly developed computer centers, and radar tracking stations would be required; the first couple of attempts to relay via Echo I failed, because the data on Echo's orbit was not yet accurate enough. After a few orbits, however, the radar data fed into the Computation Center, plus optical tracking data, permitted the computers to punch a tape giving the position of Echo, second by second, with extremely high accuracy.

These punched tapes—actually, they're "fortune telling" tapes, since they predict the position of Echo at precisely specified future times—are fed into the directing mechanism that points the transmitting and receiving antennas at Goldstone and Holmdel. Second by second, following the punched-tape instructions, the antenna-directors hold the microwave apparatus exactly aligned on Echo. Since Echo is a 100′ ball one thousand miles up, and, for California-New Jersey contact, some fifteen hundred miles horizontally distant,

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

the accuracy of the directing mechanism must be of high order.

For a commercial sateloon communications network, computers and dual transmitter-receiver installations would be as necessary as the sateloons in orbit. Dual installations, because as one Echo sateloon was orbiting out of range, a second would have to be tracked, and the signal handling shifted from #1 to #2, then later to #3 as each successively "set" from the viewpoint of one or the other of the transmitting points.

Such a system would, most certainly, be enormously expensive to build and to maintain . . . but the competing possibilities look even more costly.

Standard radio links between continents are simply hopeless; there aren't enough channels now, and the communications load is increasing exponentially. Until recently—just as one example—Central Africa represented practically zero communication load. Recently the Congo alone has been keeping major communication channels very busy indeed. With further developments in Africa, we can expect an entire new continent to add demands for communication channels. The population of the Earth is increasing; more people, who are more communicative, as they are better educated. China's six hundred million people are stirring from a long sleep—practically a coma—and are going to demand huge increases in communication channels.

Normal radio links are flatly impossible.

The transcontinental communications were handled by cables before the microwave relay system was available; can't the intercontinental load be handled by cables?

Well . . . it isn't quite strictly true that the transcontinental links were supplied by cables. They were supplied by cables *and amplifier-repeater stations.* I don't have at hand how many hundred million times up a telephone voice has to be amplified to get from Los Angeles to New York in good condition, but it's plenty. There are elaborate relay-amplifier stations all across the country to do that job.

Laying the cables across the ocean isn't too tough a job for 1960-level technology . . . but the relay-amplifier problem is a fish of a different fin. How do you make a complete amplifier-relay station capable of being built into a cable, and lowered to the half-mile-down bottom of the Atlantic that is, and stays, leaktight, and is, and stays, in good operating condition? You know, hauling up an Atlantic cable from the bottom so that a burned-out tube can be replaced isn't a darned sight cheaper than replacing a sateloon in orbit!

And, although those near impossible problems have been solved, we do have transatlantic cables with vacuum tube amplifier repeaters lying on the sea-bed, but they're limited in utility. Bandwidth requires power; the broader the band of frequencies the amplifier can handle, the more electric power is required. And in those transatlantic sea-bed repeaters,

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

the power for the amplifiers has to come via the cable itself, from shore stations. Feeding filament and plate power to an amplifier through one thousand miles of wire gets to be a problem.

Transistors can be, and will be used . . . but this is something one doesn't rush into hurriedly. The oldest transistor types are long since discarded as hopelessly primitive; they're almost eleven years old. Transistors would give more amplification per watt of input power . . . if we knew we had a sound, reliable transistor which would in fact, not merely in theory, work for ten or more years. Because we can't afford to go groping in the black depths of the Atlantic for a sunken cable, during a North Atlantic winter, in order to replace a shoe-button transistor that conked out, and tied up the intercontinental cable.

Incidentally . . . remember that Russian "fishing trawler" that "accidentally" snagged a transatlantic cable year or so ago? The amplifier-repeater mechanisms used in those cables are really very, very neat little units, representing an extremely highly developed electronic technology. They use vacuum tubes with an expectable service life of *twenty-five years* in continuous operation. (Try that on your home TV set!) Possibly the Russians were curious about the exact mechanism of those highly efficient units, huh?

In any case, cables are the only foreseeable competitor for the Echo sateloon system for transoceanic communications. And cables, while a great deal less spectacular, are not a great deal less expensive to build, install, or maintain.

Further, once a cable is built and installed, you're committed to the engineering technique installed in it. If it is limited to x megacycles bandwidth . . . that is *that.* But Echo sateloons can be used to reflect any kind of transmitted energy, at any frequency from about one hundred mc right up through the infrared, visible, and near ultraviolet. They'll reflect any kind of transmission, with any newly-invented modulation system, without any modifications whatever.

Every indication is that solid-fuel rockets will make the problem of orbiting equipment cheaper and easier.

The latest alternative suggestion for a space-reflection system of intercontinental communication is to orbit several billion finer-than-hairs microwave antennas. Tiny bits of wire are thrown into orbit, to react to radiation and, by re-radiating it, return it to Earth. Essentially, this was the principle of "chaff" or "window" used in fouling up enemy radar during WWII—aluminum foil that returned radar echoes and made it appear that thousands of bombers were all over the sky.

This could be done; if the metal wires were all cut to an exact half-wavelength, the strength of the echo would be immense. Then, a ten kw transmitter at Goldstone could be picked up with a microwave dish at-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

tached to a crystal detector and a pair of headphones! It would be enormously more efficient, in terms of energy, than the spherical mirror system.

But . . . it would work *only* for the precise frequency for which the wires were cut. If they were tiny strips of silver foil, moreover, you probably couldn't send a TV program that way! The antennas would "ring" or resonate, at their natural half-wave frequency so strongly that you couldn't get the five-million-changes-a-second required for a TV picture. They'd just go on "ringing" when the signal was cut off!

Of course, that would enormously limit the utility of the reflector. It might, also, impose some extremely dangerous limitations on space flight to have several billion bits of hardware flying around in vague orbits.

Hm-m-m . . . maybe that explains the rings of Saturn. Do you suppose the intelligent inhabitants of Saturn established orbiting "chaff" reflectors for intercontinental communications . . . ?

Such is the background of Echo I. It remains that Echo is a true space First—the first satellite put into orbit for direct money-making, profit-earning reasons.

Naturally the United States would achieve that First!

And that, despite the fact that our own people now demean, sneer, and hold unethical the very idea of crass, materialistic, capitalistic profit-making motives.

Today, in the United States, only the crackpots are respectable.

Crackpots are idealists who are incompetent to make money at it. A successful crackpot is someone who can get somebody else's money to pay for his noble, wonderful idea.

Space flight, like all other enduring things, will not be built by crackpots, but by geniuses who learn how to make money at it.

Echo I is the first genius-product into space.

Bibliography:

Most of the data in this article was cribbed from two sources: the testimony of Dr. John R. Pierce, before the Federal Communications Commission, in re "Allocation of Frequencies above 890 Mc," Docket No. 11866, and a lecture by Frederick R. Kappel, President of the American Telephone & Telegraph Company, at the University of California, at Los Angeles, June 29, 1960. Since I used more than one source, this constitutes "research" rather than "plagiarism." Besides, the original papers make good reading, if you can get hold of them.

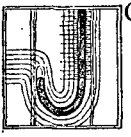
THE END

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

A gun is an interesting weapon; it can be hired, of course, and naturally doesn't care who hires it. Something much the same can be said of the gunman, too . . .

GUN . . . .

By MACK REYNOLDS



OE PRANTERA called softly, "Al." The pleasurable, comfortable, warm feeling began spreading over him, the way it always did.

The older man stopped and squinted, but not suspiciously, even now.

The evening was dark, it was unlikely that the other even saw the circle of steel that was the mouth of the shotgun barrel, now resting on the car's window ledge.

"Who's it?" he growled.

Joe Prantera said softly, "Big Louis sent me, Al."

And he pressed the trigger.

And at that moment, the universe caved inward upon Joseph Marie Prantera.

There was nausea and nausea upon nausea.

There was a falling through all space and through all time. There was doubling and twisting and twitching of every muscle and nerve.

There was pain, horror and tumultuous fear.

And he came out of it as quickly and completely as he'd gone in.

He was in, he thought, a hospital and his first reaction was to think, *This here California. Everything dif-*

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Illustrated by van Dongen

. . . FOR HIRE

ferent. Then his second thought was *Something went wrong. Big Louis, he ain't going to like this.*

He brought his thinking to the present. So far as he could remember, he hadn't completely pulled the trigger. That at least meant that whatever the rap was it wouldn't be too tough. With luck, the syndicate would get him off with a couple of years at Quentin.

A door slid open in the wall in a way that Joe had never seen a door operate before. *This here California.*

The clothes on the newcomer were wrong, too. For the first time, Joe Prantera began to sense an alienness —a something that was awfully wrong.

The other spoke precisely and slowly, the way a highly educated man speaks a language which he reads

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

and writes fluently but has little occasion to practice vocally. "You have recovered?"

Joe Prantera looked at the other expressionlessly. Maybe the old duck was one of these foreign doctors, like.

The newcomer said, "You have undoubtedly been through a most harrowing experience. If you have any untoward symptoms, possibly I could be of assistance."

Joe couldn't figure out how he stood. For one thing, there should have been some kind of police guard.

The other said, "Perhaps a bit of stimulant?"

Joe said flatly, "I wanta lawyer."

The newcomer frowned at him. "A lawyer?"

"I'm not sayin' nothin'. Not until I get a mouthpiece."

The newcomer started off on another tack. "My name is Lawrence Reston-Farrell. If I am not mistaken, you are Joseph Salviati-Prantera."

Salviati happened to be Joe's mother's maiden name. But it was unlikely this character could have known that. Joe had been born in Naples and his mother had died in childbirth. His father hadn't brought him to the States until the age of five and by that time he had a stepmother.

"I wanta mouthpiece," Joe said flatly, "or let me outta here."

Lawrence Reston-Farrell said, "You are not being constrained. There are clothes for you in the closet there."

Joe gingerly tried swinging his feet to the floor and sitting up, while the other stood watching him, strangely. He came to his feet. With the exception of a faint nausea, which brought back memories of that extreme condition he'd suffered during . . . during what? He hadn't the vaguest idea of what had happened.

He was dressed in a hospital-type nightgown. He looked down at it and snorted and made his way over to the closet. It opened on his approach, the door sliding back into the wall in much the same manner as the room's door had opened for Reston-Farrell.

Joe Prantera scowled and said, "These ain't my clothes."

"No, I am afraid not."

"You think I'd be seen dead wearing this stuff? What is this, some religious crackpot hospital?"

Reston-Farrell said, "I am afraid, Mr. Salviati-Prantera, that these are the only garments available. I suggest you look out the window there."

Joe gave him a long, chill look and then stepped to the window. He couldn't figure the other. Unless he was a fruitcake. Maybe he was in some kind of pressure cooker and this was one of the fruitcakes.

He looked out, however, not on the lawns and walks of a sanitarium but upon a wide boulevard of what was obviously a populous city.

And for a moment again, Joe Prantera felt the depths of nausea.

This was not his world.

He stared for a long, long moment. The cars didn't even have wheels, he noted dully. He turned slowly and faced the older man.

Reston-Farrell said compassionately, "Try this, it's excellent cognac."

Joe Prantera stared at him, said fi-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

nally, flatly, "What's it all about?"

The other put down the unaccepted glass. "We were afraid first realization would be a shock to you," he said. "My colleague is in the adjoining room. We will be glad to explain to you if you will join us there."

"I wanta get out of here," Joe said.

"Where would you go?"

The fear of police, of Al Rossi's vengeance, of the measures that might be taken by Big Louis on his failure, were now far away.

Reston-Farrell had approached the door by which he had entered and it reopened for him. He went through it without looking back.

There was nothing else to do. Joe dressed, then followed him.

In the adjoining room was a circular table that would have accommodated a dozen persons. Two were seated there now, papers, books and soiled coffee cups before them. There had evidently been a long wait.

Reston-Farrell, the one Joe had already met, was tall and drawn of face and with a chainsmoker's nervousness. The other was heavier and more at ease. They were both, Joe estimated, somewhere in their middle fifties. They both looked like docs. He wondered, all over again, if this was some kind of pressure cooker.

But that didn't explain the view from the window.

Reston-Farrell said, "May I present my colleague, Citizen Warren Brett-James? Warren, this is our guest from . . . from yesteryear, Mr. Joseph Salviati-Prantera."

Brett-James nodded to him, friendly, so far as Joe could see. He said gently, "I think it would be Mr. Joseph Prantera, wouldn't it? The maternal linage was almost universally ignored." His voice too gave the impression he was speaking a language not usually on his tongue.

Joe took an empty chair, hardly bothering to note its alien qualities. His body seemed to *fit* into the piece of furniture, as though it had been molded to his order.

Joe said, "I think maybe I'll take that there drink, Doc."

Reston-Farrell said, "Of course," and then something else Joe didn't get. Whatever the something else was, a slot opened in the middle of the table and a glass, so clear of texture as to be all but invisible, was elevated. It contained possibly three ounces of golden fluid.

Joe didn't allow himself to think of its means of delivery. He took up the drink and bolted it. He put the glass down and said carefully, "What's it all about, huh?"

Warren Brett-James said soothingly. "Prepare yourself for somewhat of a shock, Mr. Prantera. You are no longer in Los Angeles—"

"Ya think I'm stupid? I can see that."

"I was about to say, Los Angeles of 1960. Mr. Prantera, we welcome you to Nuevo Los Angeles."

"Ta where?"

"To Nuevo Los Angeles and to the year—" Brett-James looked at his companion. "What is the date, Old Calendar?"

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"2133," Reston-Farrell said. "2133 A.D. they would say."

Joe Prantera looked from one of them to the other, scowling. "What are you guys talking about?"

Warren Brett-James said softly. "Mr. Prantera, you are no longer in the year 1960, you are now in the year 2133."

He said, uncomprehendingly, "You mean I been, like, unconscious for—" He let the sentence fall away as he realized the impossibility.

Brett-James said gently, "Hardly for one hundred and seventy years, Mr. Prantera."

Reston-Farrell said, "I am afraid we are confusing you. Briefly, we have *transported* you, I suppose one might say, from your own era to ours."

Joe Prantera had never been exposed to the concept of time travel. He had simply never associated with anyone who had ever even remotely considered such an idea. Now he said, "You mean, like, I been asleep all that time?"

"Not exactly," Brett-James said, frowning.

Reston-Farrell said, "Suffice to say, you are now one hundred and seventy-three years after the last memory you have."

Joe Prantera's mind suddenly reverted to those last memories and his eyes narrowed dangerously. He felt suddenly at bay. He said, "Maybe you guys better let me in on what's this all about."

Reston-Farrell said, "Mr. Prantera, we have brought you from your era to perform a task for us."

Joe stared at him, and then at the other. He couldn't believe he was getting through to them. Or, at least, that they were to him.

Finally he said, "If I get this, you want me to do a job for you."

"That is correct."

Joe said, "You guys know the kind of jobs I do?"

"That is correct."

"Like hell you do. You think I'm stupid? I never even seen you before." Joe Prantera came abruptly to his feet. "I'm gettin' outta here."

For the second time, Reston-Farrell said, "Where would you go, Mr. Prantera?"

Joe glared at him. Then sat down again, as abruptly as he'd arisen.

"Let's start all over again. I got this straight, you brought me, some screwy way, all the way . . . here. O.K., I'll buy that. I seen what it looks like out that window—" The real comprehension was seeping through to him even as he talked. "Everybody I know, Jessie, Tony, the Kid, Big Louis, everybody, they're dead. Even Big Louis."

"Yes," Brett-James said, his voice soft. "They are all dead, Mr. Prantera. Their children are all dead, and their grandchildren."

The two men of the future said nothing more for long minutes while Joe Prantera's mind whirled its confusion.

Finally he said, "What's this bit about you wanting me to give it to some guy."

"That is why we brought you here,

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Mr. Prantera. You were . . . you are, a professional assassin."

"Hey, wait a minute, now."

Reston-Farrell went on, ignoring the interruption. "There is small point in denying your calling. Pray remember that at the point when we . . . *transported* you, you were about to dispose of a contemporary named Alphonso Annunziata-Rossi. A citizen, I might say, whose demise would probably have caused small dismay to society."

They had him pegged all right. Joe said, "But why me? Why don't you get some heavy from now? Somebody knows the ropes these days."

Brett-James said, "Mr. Prantera, there are no professional assassins in this age, nor have there been for over a century and a half."

"Well, then do it yourself." Joe Prantera's irritation over this whole complicated mess was growing. And already he was beginning to long for the things he knew—for Jessie and Tony and the others, for his favorite bar, for the lasagne down at Papa Giovanni's. Right now he could have welcomed a calling down at the hands of Big Louis.

Reston-Farrell had come to his feet and walked to one of the large room's windows. He looked out, as though unseeing. Then, his back turned, he said, "We have tried, but it is simply not in us, Mr. Prantera."

"You mean you're yella?"

"No, if by that you mean afraid. It is simply not within us to take the life of a fellow creature—not to speak of a fellow man."

Joe snapped: "Everything you guys say sounds crazy. Let's start all over again."

Brett-James said, "Let me do it, Lawrence." He turned his eyes to Joe. "Mr. Prantera, in your own era, did you ever consider the future?"

Joe looked at him blankly.

"In your day you were confronted with national and international, problems. Just as we are today and just as nations were a century or a millennium ago."

"Sure, O.K., so we had problems. I know whatcha mean—like wars, and depressions and dictators and like that."

"Yes, like that," Brett-James nodded.

The heavy-set man paused a moment. "Yes, like that," he repeated. "That we confront you now indicates that the problems of your day were solved. Hadn't they been, the world most surely would have destroyed itself. Wars? Our pedagogues are hard put to convince their students that such ever existed. More than a century and a half ago our society eliminated the reasons for international conflict. For that matter," he added musingly, "we eliminated most international boundaries. Depressions? Shortly after your own period, man awoke to the fact that he had achieved to the point where it was possible to produce an abundance for all with a minimum of toil. Overnight, for all practical purposes, the whole world was industrialized, automated. The second industrial revolution was accompanied by revolutionary changes

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

in almost every field, certainly in every science. Dictators? Your ancestors found, Mr. Prantera, that it is difficult for a man to be free so long as others are still enslaved. Today the democratic ethic has reached a pinnacle never dreamed of in your own era."

"O.K., O.K." Joe Prantera growled. "So everybody's got it made. What I wanta know is what's all this about me giving it ta somebody? If everything's so great, how come you want me to knock this guy off?"

Reston-Farrell bent forward and thumped his right index finger twice on the table. "The bacterium of hate —a new strain—has found the human race unprotected from its disease. We had thought our vaccines immunized us."

"What's that suppose to mean?"

Brett-James took up the ball again. "Mr. Prantera, have you ever heard of Ghengis Khan, of Tamerlane, Alexander, Caesar?"

Joe Prantera scowled at him emptily.

"Or, more likely, of Napoleon, Hitler, Stalin?"

"Sure I heard of Hitler and Stalin," Joe growled. "I ain't stupid."

The other nodded. "Such men are unique. They have a drive . . . a drive to power which exceeds by far the ambitions of the average man. They are genii in their way, Mr. Prantera, genii of evil. Such a genius of evil has appeared on the current scene."

"Now we're getting somewheres," Joe snorted. "So you got a guy what's a little ambitious, like, eh? And you guys ain't got the guts to give it to him. O.K. What's in it for me?"

The two of them frowned, exchanged glances. Reston-Farrell said, "You know, that is one aspect we had not considered."

Brett-James said to Joe Prantera, "Had we not, ah, taken you at the time we did, do you realize what would have happened?"

"Sure," Joe grunted. "I woulda let old Al Rossi have it right in the guts, five times. Then I woulda took the plane back to Chi."

Brett-James was shaking his head. "No. You see, by coincidence, a police squad car was coming down the street just at that moment to arrest Mr. Rossi. You would have been apprehended. As I understand Californian law of the period, your life would have been forfeit, Mr. Prantera."

Joe winced. It didn't occur to him to doubt their word.

Reston-Farrell said, "As to reward, Mr. Prantera, we have already told you there is ultra-abundance in this age. Once this task has been performed, we will sponsor your entry into present day society. Competent psychiatric therapy will soon remove your present—"

"Waita minute, now. You figure on gettin me candled by some head shrinker, eh? No thanks, Buster. I'm going back to my own—"

Brett-James was shaking his head again. "I am afraid there is no return, Mr. Prantera. Time travel works but in one direction, *with* the flow of the

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

time stream. There can be no return to your own era."

Joe Prantera had been rocking with the mental blows he had been assimilating, but this was the final haymaker. He was stuck in this squaresville of a world.

Joe Prantera on a job was thorough. Careful, painstaking, competent.

He spent the first three days of his life in the year 2133 getting the feel of things. Brett-James and Reston-Farrell had been appointed to work with him. Joe didn't meet any of the others who belonged to the group which had taken the measures to bring him from the past. He didn't want to meet them. The fewer persons involved, the better.

He stayed in the apartment of Reston-Farrell. Joe had been right, Reston-Farrell was a medical doctor. Brett-James evidently had something to do with the process that had enabled them to bring Joe from the past. Joe didn't know how they'd done it, and he didn't care. Joe was a realist. He was here. The thing was to adapt.

There didn't seem to be any hurry. Once the deal was made, they left it up to him to make the decisions.

They drove him around the town, when he wished to check the traffic arteries. They flew him about the whole vicinity. From the air, Southern California looked much the same as it had in his own time. Oceans, mountains, and to a lesser extent, deserts, are fairly permanent even against man's corroding efforts.

It was while he was flying with Brett-James on the second day that Joe said, "How about Mexico? Could I make the get to Mexico?"

The physicist looked at him questioningly, "Get?" he said.

Joe Prantera said impatiently, "The getaway. After I give it to this Howard Temple-Tracy guy, I gotta go on the run, don't I?"

"I see." Brett-James cleared his throat. "Mexico is no longer a separate nation, Mr. Prantera. All North America has been united into one unit. Today, there are only eight nations in the world."

"Where's the nearest?"

"South America."

"That's a helluva long way to go on a get."

"We hadn't thought of the matter being handled in that manner."

Joe eyed him in scorn. "Oh, you didn't, huh? What happens after I give it to this guy? I just sit around and wait for the cops to put the arm on me?"

Brett-James grimaced in amusement. "Mr. Prantera, this will probably be difficult for you to comprehend, but there are no police in this era."

Joe gaped at him. "No police! What happens if you gotta throw some guy in stir?"

"If I understand your idiom correctly, you mean prison. There are no prisons in this era, Mr. Prantera."

Joe stared. "No cops, no jails. What stops anybody? What stops anybody from just going into some bank, like, and collecting up all the bread?"

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Brett-James cleared his throat. "Mr. Prantera, there are no banks."

"No banks! You gotta have banks!"

"And no money to put in them. We found it a rather antiquated method of distribution well over a century ago."

Joe had given up. Now he merely stared.

Brett-James said reasonably, "We found we were devoting as much time to financial matters in all their endless ramifications—including bank robberies—as we were to productive efforts. So we turned to more efficient methods of distribution."

On the fourth day, Joe said, "O.K., let's get down to facts. Summa the things you guys say don't stick together so good. Now, first place, where's this guy Temple-Tracy you want knocked off?"

Reston-Farrell and Brett-James were both present. The three of them sat in the living room of the latter's apartment, sipping a sparkling wine which seemed to be the prevailing beverage of the day. For Joe's taste it was insipid stuff. Happily, rye was available to those who wanted it.

Reston-Farrell said, "You mean, where does he reside? Why, here in this city."

"Well, that's handy, eh?" Joe scratched himself thoughtfully. "You got somebody can finger him for me?"

"Finger him?"

"Look, before I can give it to this guy I gotta know some place where he'll be at some time. Get it? Like Al Rossi. My finger, he works in Rossi's house, see? He lets me know every Wednesday night, eight o'clock, Al leaves the house all by hisself. O.K., so I can make plans, like, to give it to him." Joe Prantera wound it up reasonably. "You gotta have a finger."

Brett-James said, "Why not just go to Temple-Tracy's apartment and, ah, dispose of him?"

"Jest walk in, eh? You think I'm stupid? How do I know how many witnesses hangin' around? How do I know if the guy's carryin' heat?"

"Heat?"

"A gun, a gun. Ya think I'm stupid? I come to give it to him and he gives it to me instead."

Dr. Reston-Farrell said, "Howard Temple-Tracy lives alone. He customarily receives visitors every afternoon, largely potential followers. He is attempting to recruit members to an organization he is forming. It would be quite simple for you to enter his establishment and dispose of him. I assure you, he does not possess weapons."

Joe was indignant. "Just like that, eh?" he said sarcastically. "Then what happens? How do I get out of the building? Where's my get car parked? Where do I hide out? Where do I dump the heat?"

"Dump the heat?"

"Get rid of the gun. You want I should get caught with the gun on me? I'd wind up in the gas chamber so quick—"

"See here, Mr. Prantera," Brett-James said softly. "We no longer have capital punishment, you must realize."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"O.K. I still don't wanta get caught. What *is* the rap these days, huh?" Joe scowled. "You said they didn't have no jails any more."

"This is difficult for you to understand, I imagine," Reston-Farrell told him, "but, you see, we no longer punish people in this era."

That took a long, unbelieving moment to sink in. "You mean, like, no matter what they do? That's crazy. Everybody'd be running around giving it to everybody else."

"The motivation for crime has been removed, Mr. Prantera," Reston-Farrell attempted to explain. "A person who commits a violence against another is obviously in need of medical care. And, consequently, receives it."

"You mean, like, if I steal a car or something, they just take me to a doctor?" Joe Prantera was unbelieving.

"Why would anybody wish to steal a car?" Reston-Farrell said easily.

"But if I *give it* to somebody?"

"You will be turned over to a medical institution. Citizen Howard Temple-Tracy is the last man you will ever kill, Mr. Prantera."

A chillness was in the belly of Joe Prantera. He said very slowly, very dangerously, "You guys figure on me getting caught, don't you?"

"Yes," Brett-James said evenly.

"Well then, figure something else. You think I'm stupid?"

"Mr. Prantera," Dr. Reston-Farrell said, "there has been as much progress in the field of psychiatry in the past two centuries as there has in any other. Your treatment would be brief and painless, believe me."

Joe said coldly, "And what happens to you guys? How do you know I won't rat on you?"

Brett-James said gently, "The moment after you have accomplished your mission, we plan to turn ourselves over to the nearest institution to have determined whether or not we also need therapy."

"Now I'm beginning to wonder about you guys," Joe said. "Look, all over again, what'd'ya wanta give it to this guy for?"

The doctor said, "We explained the other day, Mr. Prantera. Citizen Howard Temple-Tracy is a dangerous, atavistic, evil genius. We are afraid for our institutions if his plans are allowed to mature."

"Well if you got things so good, everybody's got it made, like, who'd listen to him?"

The doctor nodded at the validity of the question. "Mr. Prantera, *Homo sapiens* is a unique animal. Physically he matures at approximately the age of thirteen. However, mental maturity and adjustment is often not fully realized until thirty or even more. Indeed, it is sometimes never achieved. Before such maturity is reached, our youth are susceptible to romantic appeal. Nationalism, chauvinism, racism, the supposed glory of the military, all seem romantic to the immature. They rebel at the orderliness of present society. They seek entertainment in excitement. Citizen Temple-Tracy is aware of this and finds his recruits among the young."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"O.K., so this guy is dangerous. You want him knocked off before he screws everything up. But the way things are, there's no way of making a get. So you'll have to get some other patsy. Not me."

"I am afraid you have no alternative," Brett-James said gently. "Without us, what will you do? Mr. Prantera, you do not even speak the language."

"What'd'ya mean? I don't understand summa the big words you egg-heads use, but I get by O.K."

Brett-James said, "Amer-English is no longer the language spoken by the man in the street, Mr. Prantera. Only students of such subjects any longer speak such tongues as Amer-English, French, Russian or the many others that once confused the race with their limitations as a means of communication."

"You mean there's no place in the whole world where they talk American?" Joe demanded, aghast.

Dr. Reston-Farrell controlled the car. Joe Prantera sat in the seat next to him and Warren Brett-James sat in the back. Joe had, tucked in his belt, a .45 caliber automatic, once displayed in a museum. It had been more easily procured than the ammunition to fit it, but that problem too had been solved.

The others were nervous, obviously repelled by the very conception of what they had planned.

Inwardly, Joe was amused. Now that they had got in the clutch, the others were on the verge of chickening out. He knew it wouldn't have taken much for them to cancel the project. It wasn't any answer though. If they allowed him to call it off today, they'd talk themselves into it again before the week was through.

Besides, already Joe was beginning to feel the comfortable, pleasurable, warm feeling that came to him on occasions like this.

He said, "You're sure this guy talks American, eh?"

Warren Brett-James said, "Quite sure. He is a student of history."

"And he won't think it's funny I talk American to him, eh?"

"He'll undoubtedly be intrigued."

They pulled up before a large apartment building that overlooked the area once known as Wilmington.

Joe was coolly efficient now. He pulled out the automatic, held it down below his knees and threw a shell into the barrel. He eased the hammer down, thumbed on the safety, stuck the weapon back in his belt and beneath the jacketlike garment he wore.

He said, "O.K. See you guys later." He left them and entered the building.

An elevator—he still wasn't used to their speed in this era—whooshed him to the penthouse duplex occupied by Citizen Howard Temple-Tracy.

There were two persons in the reception room but they left on Joe's arrival, without bothering to look at him more than glancingly.

He spotted the screen immediately and went over and stood before it.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

The screen lit and revealed a heavy-set, dour of countenance man seated at a desk. He looked into Joe Prantera's face, scowled and said something.

Joe said, "Joseph Salviati-Prantera to interview Citizen Howard Temple-Tracy."

The other's shaggy eyebrows rose. "Indeed," he said. "In Amer-English?"

Joe nodded.

"Enter," the other said.

A door had slid open on the other side of the room. Joe walked through it and into what was obviously an office. Citizen Temple-Tracy sat at a desk. There was only one other chair in the room. Joe Prantera ignored it and remained standing.

Citizen Temple-Tracy said, "What can I do for you?"

Joe looked at him for a long, long moment. Then he reached down to his belt and brought forth the .45 automatic. He moistened his lips.

Joe said softly, "You know what this here is?"

Temple-Tracy stared at the weapon. "It's a handgun, circa, I would say, about 1925 Old Calendar. What in the world are you doing with it?"

Joe said, very slowly, "Chief, in the line you're in these days you needa heavy around with wunna these. Otherwise, Chief, you're gunna wind up in some gutter with a lotta holes in you. What I'm doin', I'm askin' for a job. You need a good man knows how to handle wunna these, Chief."

Citizen Howard Temple-Tracy eyed him appraisingly. "Perhaps," he said, "you are right at that. In the near future, I may well need an assistant knowledgeable in the field of violence. Tell me more about yourself. You surprise me considerably."

"Sure, Chief. It's kinda a long story, though. First off, I better tell you you got some bad enemies, Chief. Two guys special, named Brett-James and Doc Reston-Farrell. I think one of the first jobs I'm gunna hafta do for you, Chief, is to give it to those two."

THE END

THE TRUE NATURE OF THEORY

An Acceptable Theory is one that explains out of existence everything it doesn't explain; an Unsatisfactory Theory is one that explains what it explains, but doesn't explain away the rest of the Universe.

If you have ten per cent success, you can explain away the ninety per cent failures, it's a Science. If you have ninety per cent success, and can't explain the ten per cent failures, it's Mere Coincidence.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

MAN.

One of the very finest ways to louse up someone who is determined but unwise is to give him just exactly what he thinks he wants . . .

Illustrated by Summers

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

. . OF ACTION

By DONALD E. WESTLAKE

HEN Roger awoke, the calendar-clock beside his bed told him it was August 14, 2138. "That's odd," mused Roger. "It was December 3, 1960 when I went to sleep." He frowned and tilted his head to one side. "Or was it December 4th?"

"December 3rd," said a voice.

Roger looked around and saw that he was alone in the room. "I don't think *I* said that," he told himself. "My voice isn't that deep."

He waited, but the voice didn't say anything.

Roger sat up and studied the room. He'd never seen it before, he was quite sure of that. The walls were of a peculiarly bright golden hue that Roger would never have chosen for a bedroom, and the floor seemed to be of black linoleum. Or something like linoleum. He stooped and touched the polished black smoothness of the floor, and it felt . . . well, non-linoleum-like. "It certainly isn't linoleum," said Roger. "What in the world is it?"

"Fluoryl plastic," said the voice.

Roger spun around. The voice, this time, had come from behind him. But still he was alone in the room. "Who said that?" he demanded.

"I did," said the voice, from somewhere straight ahead.

"Where are you?" asked Roger, squinting a trifle.

"Here," said the voice.

"*Who* are you, then?"

"Your mechanical."

Roger blinked. "My mechanical what?"

"Uh," said the voice. "Squawk. Brrrp-brrrp, *crah!* I am your mechanical." Except for the *'crah!'*, all of the sounds and words had been delivered with the same unemotional monotone that had characterized the

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

voice from the beginning. The *'crah!'* was different only in that it was somewhat louder and a bit higher in pitch.

"My mechanical," echoed Roger. He frowned and folded his arms and blinked at the blank golden wall. And it was a blank wall, a very blank wall. All the walls were blank, save for a door in the wall to Roger's right and a window in the wall to his left. The door was silver and knobless, and in conjunction with the golden walls it made Roger think of money. And money made him think of income and outgo, which made him think of work, which made him remember that he had gone to sleep on December 3, 1960 and had awakened—if the calendar-clock were to be believed— on August 14, 2138, in a room utterly different from his own bedroom, and in a bed as strange as any he had ever seen.

Stranger, come to think of it. It was the first bed he'd ever seen hover eighteen inches above the floor.

Which made him think of the voice, for some reason, and he said, petulantly, "My mechanical *what?*"

"Machine?" said the voice, with a definite air of hesitant doubt.

"My mechanical machine?" Roger looked again at the blank wall. "A robot, you mean?"

"Not precisely," said the voice.

"Where's your grid?" asked Roger.

"Meaning doubtful," said the voice. "Grid nonexistent."

"Is it really August 14, 2138?" asked Roger, struck suddenly by the idea that the calendar-clock might be wrong. Must be wrong. 1960 to 2138 was—he couldn't figure it exactly, but it was over a hundred years. Well over a hundred years.

"The date is correct," said the voice.

"Where am I, exactly?" asked Roger.

"In this room," said the voice.

"I mean, geographically," said Roger, annoyed at the infuriating habit of the voice of taking every question at its most literal level of meaning.

"New York," said the voice, "North-Eastern Union, North America, Earth, Solar Sys—"

"Enough! Thank you very much, New York was enough. That was where I went to sleep last night. Or whenever it was. At least that hasn't changed." Roger walked over to the window and looked out, to discover that it had changed after all. The New York outside his window was far different from the New York outside his Greenwich Village window at home, back in 1960. This New York consisted almost entirely of straight vertical lines and elliptical diagonal lines, and almost everything was the same gold as the room walls or the same silver as the room door or the same black as the room floor.

"Is that real gold?" asked Roger, then hurriedly added, "Wait! I mean the metal, not the color."

"No," said the voice.

Roger sighed with irritation. "What is it, then?" he asked.

"Fluoryl plastic," said the voice.

"And the silver?"

"Yes."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"And the black."

There was no answer, and Roger wondered what had gone wrong until he realized he'd phrased that last remark as a statement rather than a question. The voice, he now understood, responded only to direct questions.

It was time for the most direct question of all. "What's going on here?" asked Roger.

"You are asking questions," said the voice, "and I am answering them."

"That isn't what I *mean,*" wailed Roger. "I mean . . . I mean— What am I *doing* here?"

"You are asking questions," said the voice.

Yelping, Roger snatched up the calendar-clock to hurl it, and stood posed, off-balance, rocking a bit. There wasn't anything to hurl at, nothing but the four golden walls, the black floor, the silver door, the hovering bed, the kidney-shaped bedside table and the view out of the window. That last was good enough for Roger. He hurled the calendar-clock out the window.

The window hurled it right back. The calendar-clock bounced off the window, passed Roger at waist-level, and clashed to the floor, where it slid along until it brought up against the far wall, near the door.

Roger gaped in all directions at once, and finally moved forward to gingerly touch the window. It looked like glass, and it felt like glass, but it certainly hadn't reacted like glass. "What in the world is it?" he wondered.

"*Fluoryl plastic,*" said the voice.

Roger jumped. He hadn't realized he'd asked that question aloud. It was a habit of his, he knew, talking to himself. It was because his three vocations—interior decorating, set designing and department store window display designing—were all essentially solitary occupations. Himself over a drawing board or prowling a presently-shabby living room or pinning a dress to a mannequin, always more or less alone, thinking and deciding and planning, and quite naturally he had developed the habit of voicing his thoughts aloud. Things like, "Red over that fireplace, I should think," or, "Never do to put an entrance on that side," or," "Black crepe hangings around the wedding gown would be chic."

Which brought to mind, once again, the fact that it was morning and Roger should definitely be on his way to work. He was probably late already, and the manager at Wellman's Department Store was a terror for punctuality.

"Of course I'm late," he said aloud, struck by the incongruity of it all. "I'm well over a hundred years late."

He whirled on the wall from which the voice seemed to emanate. "I want to know what's going on," he said angrily. "I want to know how I got here and why and when I can expect to go back and just exactly what's going on here. And I want to know now, this minute."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Ultimatum delivered, Roger folded his arms and waited, glaring at the wall. But the voice made no sound, and Roger remembered again that he had to ask his questions so that they sounded like questions, or the voice would simply ignore him. "All right," he said, disgusted. "All right, then. We'll play it your way. Question number one. How did I get here?"

"You were brought here," said the voice.

"How?"

"Answer unavailable, involving theoretical physics beyond your mechanical's understanding."

"I do not have mechanical understanding," said Roger. "Oh, wait. You mean *you*. Well. Was it a time machine?"

"Yes," said the voice.

"You could have simply said that in the first place," said Roger reproachfully. "I didn't want to know the mechanics of the thing. All right, question number two. Who brought me here?"

The voice began to reel off syllables, most of them containing an M or an L or an N, with either A or O for the vowel. A dozen or more of these syllables had poured out before Roger cried, "Stop! Halt! What *is* that, French?"

"Names," said the voice.

It took Roger a minute to turn that answer into sense, and then he realized that the voice, literal as ever, had been giving him the names of the men who had built or operated or directed the operation of the time machine that had whisked him here from December 3, 1960.

December 3, 1960. "My Christmas windows!" wailed Roger all at once, remembering what he'd been due to work on today, at Wellman's Department Store.

"It isn't fair!" cried Roger. "I never did anything to anybody in 2138. I don't even *know* anybody in 2138. And I certainly don't have any descendants in 2138. I'm not married, and I have no intention of ever becoming married." A doubt crossed his mind, and he frowned at the wall. "I don't get married, do I?" he asked.

"Restricted," said the voice.

Roger blinked. "Restricted? What do you mean, restricted?"

"Word in use in mid-Twentieth Century," said the voice. "Meaning: applies to facts known to elite but hidden from masses. Usage here adaptation for present needs."

The voice had an annoying habit, every once in a while, of talking like a telegram, which meant that Roger had to let the words circle around in his head two or three times, while inserting verbs and pronouns and modifiers, until he figured out what the message had been.

The message this time was humiliating. "Do you mean to say," Roger demanded, "that *you* are the elite and *I* am the masses? Or should I say the mass?"

"Usage here," said the voice, "adaption for present needs."

"What that means," snapped Roger, "is that you won't tell me

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

whether I ever get married or not. Do I have some smart-Aleck great-grandson playing a trick on his old great-granddad, *is that it?*"

"No," said the voice.

"Well! A straight answer at last. Then maybe you'll tell me what. I *am* here for." Roger paused, grimaced, rephrased the last sentence and said, "What am I here for?"

"Restricted," said the voice.

"Well, there must be *some* reason, after all," said Roger, exasperated. "*Is* there a reason?"

"Yes," said the voice.

"But you won't tell me. I mean, you won't tell me, will you?"

"No," said the voice.

"That's what I thought," said Roger. He sat down on the edge of the bed and stared gloomily at his pajama-clad knees. The silence lengthened. "I wonder what happens now," he said to his knees. He looked up at the wall. "What happens now?"

"Whatever you want," said the voice.

"Then I go right back to December 3, 1960," said Roger promptly. He stretched out on the bed, folded his hands over his chest, and closed his eyes. "Five in the morning, I think," he said. "I should like a little more sleep."

He waited with his eyes closed until he had counted to twenty-five, and then he opened his eyes and looked at a silver ceiling and a golden wall. He hadn't noticed before that the ceiling was silver. Actually, it blended—

All at once, he sat up and shouted, "Hey!" He glared at the wall. "I thought you said whatever I wanted to happen would happen. Didn't you?"

"Yes," said the voice.

"Well, then," said Roger. "I want to go home. Can't I go home?"

"Yes," said the voice.

"Now?"

"No," said the voice.

"This is in*furi*ating," cried Roger. He leaped from the bed and advanced on the wall where the voice came from. "I'm going to find you," he muttered, "and rip out your wiring. Do you hear me?"

"Yes," said the voice.

Roger growled. The voice was so blatantly, blandly monotonous, so smug and self-assured. It was more than infuriating, it was—enraging. Roger tapped on the wall, trying to hear a difference in tone between one section and another, trying to find a panel or doorway or something that would let him at the voice, and found nothing. And that was even more than enraging. Roger shook his fist at the wall. "I'm going to get you!" he shouted. "Do you hear me?"

"Yes," said the voice, as calm and monotonous as ever.

"This is ridiculous," wailed Roger. "Can't you see it's ridiculous?"

"No," said the voice.

"Oh, shut up with your yeses and noes," Roger snapped. "If you can't say anything useful, don't say anything at all." He paced around the room, smoldering with helpless

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

rage and growing resentment. Stopping by the window, he looked out again at the city. It looked, he thought, like a set for a play about Buck Rogers. And not a very well-designed set at that. No symmetry at all, and a color scheme that very rapidly grew boring. Gold and silver and black, that was all, endlessly repeated. Far away, he could see tiny movement, but couldn't make sense out of it at all, couldn't say for sure whether he was seeing the movement of people or automobiles or what. And even with his forehead pressed to the glass or whatever it was, he couldn't see down to street-level at the base of this building.

He had to think. He had to figure out some way to get back to 1960 and his own life in his own world. What he'd seen of this particular segment of the future so far hadn't endeared him to 2138. He would much prefer his own bug-farm of an apartment in the Village, where the walls at least kept a discreet silence and the bed rested firmly upon the floor.

The voice had said that he could go home, and that he could have whatever he wanted, but that he couldn't go home now. Well, when *could* he go home? That seemed like a sensible enough question, so he asked it. "When can I go home?"

"When you want to," said the voice.

"I want to now," said Roger immediately. "Can I go home now?"

"No."

"Oh, for pity's *sake*," shouted Roger. "Round and round and round, you're driving me out of my mind. What's the purpose of all this?"

"Restricted," said the voice.

"But there is a purpose?"

"Yes," said the voice.

"When I know the purpose," said Roger carefully, "can I go home?"

"Yes," said the voice.

"Well. Good. At last we're getting somewhere, I hope. Now, how do I find out what the purpose is?"

"By asking me," said the voice.

"Poppycock," snorted Roger. "I've asked you half a dozen times already, and you never say anything more than, 'Restricted'. If you think I'm going to go—"

Struck by a sudden thought, Roger stopped talking but left his mouth open. He tilted his head to one side, put the index finger of his right hand on his cheekbone, and studied the thought. Carefully, he phrased his next question. "Do you mean I am to ask you questions that will help me figure out for myself what the purpose of my being here is?"

"Yes," said the voice.

"Like Twenty Questions," said Roger. "You can't mean it. You brought me all the way from December 3, 1960, just to play a question-and-answer game?"

"Yes," said the voice.

"Now that," said Roger firmly, "is the most absurd idea I've ever run across. What possible good can it do the people of 2138 to bring me all the way here from December 3, 1960, to play Twenty Questions with a mechanical machine?"

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Restricted," said the voice.

Roger, whose question had been rhetorical, was thrown into momentary confusion by the answer. Once he'd straightened it all out, he said, "All right, then. I'll play the silly game. Animal, vegetable or mineral?"

"Question incomplete," said the voice.

"I don't see what your people hope to gain from this," said Roger. "They *do* hope to gain something, don't they?"

"Yes," said the voice.

"What?"

"Resricted," said the voice.

"Oh *blast!*" swore Roger. "If you say 'Restricted,' once more, you disembodied monstrosity, I promise you I will break through that wall some way and tear you into so many pieces you'll look like an Erector set. Do you hear me?"

The voice said, "Yes."

Roger took a deep breath and held it. It would be such a pleasant relief to go berserk, to rant and rave and kick things and hit faces and break prized possessions. But he couldn't do it. There were no faces to hit and no prized possessions to break, and he had the feeling he would get the worst of any kick delivered to a fluoryl plastic wall.

The thing was, he told himself, it was patently possible to think one's way out of this mess. The voice had as much as said so. As soon as Roger figured out for himself what he was doing here, he could go home again. It all sounded rather senseless, but he could only assume that the people who had arranged this had had some sensible motive in mind, and go on from there.

The first thing to do was get calm, and stay calm. Calm and analytical and unemotional, asking, searching, probing, intensive questions, backing this monotoning mechanical slowly but inevitably into the final corner, where at last he would have to Tell All.

Fine. That was definitely the way to do it. Roger folded his arms, took a stance, and glared firmly at the wall. It was time to start asking questions.

What questions? He said it aloud. "*What* questions?"

"Question incomplete," said the voice.

Roger gritted his teeth. Calm, he told himself. You'll never get anywhere losing your temper.

He wished, all at once, that he had done more reading in science fiction. Not that that would have done much good anyway. In this situation, it would be like being murdered and wishing you'd read more detective stories.

He had to think this through, coldly and logically. What did he know so far? He knew that he had been transported, through a time machine, from December 3, 1960, to August 14, 2138. He knew he had been transported for a definite purpose. He knew that it was up to him to find out what that purpose was, and that he could only find out by asking questions of his mechanical.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

He had a sudden thought. "Is the purpose of my being here," he asked, "to discover what the purpose of my being here is?"

The voice hesitated. "Repeat, please," it said doubtfully.

Roger tried, then tried again, and made it the second time. "Am I here to find out why I'm here?"

"Yes," said the voice.

Roger beamed with relief. "Eureka!" he cried. He leaped onto the bed, composed himself with arms folded across his chest, and announced, "Send me home."

Nothing happened.

Roger opened one eye, from the corner of which he balefully surveyed the golden wall. "There's more?"

"Yes."

"More," repeated Roger. He closed the eye again, and thought. These people wanted something from him. At least, it seemed that way. He thought he'd better ask, to make sure. "Do the people who brought me here want something from me?" he asked.

"Yes," said the voice.

"That doesn't make any sense," complained Roger. "This is over a hundred years in the future. The people here must know everything I could possibly know, and lots more." He opened both eyes. "Mustn't they?"

"No," said the voice.

"No?"

"No."

"Oh. You mean they've lost something, or forgotten something?"

"Yes," said the voice.

"Like the secrets of the Pyramids," reflected Roger. "How they closed the door and piled the rocks up, or whatever the secrets of the Pyramids were." He ruminated, then sat up to ask, "Well, why don't you just *ask* me, then? I'd tell you, if I knew."

"It doesn't work that way," said the voice.

"You've tried?"

"Yes."

"Then I'm not the first one. Uh, I'm not the first one. Oh, blast it, all right, *am* I the first one?

"No," said the voice.

"Why did you pick me in particular?" Roger asked, struck by the sudden thought that there couldn't possibly be any answer that made sense.

"No," said the voice.

That one set Roger back a bit, until he remembered what question he'd asked. But this seemed to be the answer to soime other question. Unless— "You mean you *didn't* pick me in particular?"

"Yes."

Another sorting out, and Roger finally had it straight. "I was picked at random," he told himself. "By chance." Somehow, that made it all seem much much worse.

He sank into thought, meditatively tapping his fingernails against his front teeth, a practice which had cost him any number of roommates in the past but which seemed to have no effect whatsoever on the mechanical voice. "They want me to guess what it is they've lost," he said aloud. "There must be a reason for their

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

doing things this way. On the other hand, maybe there isn't. They've tried before, other ways. Maybe they're just trying anything they can think of." He looked at the wall. "Is that it?" he asked. "Are they trying different methods with different people, hoping sooner or later some method will work?"

"Yes," said the voice.

"How many times have they tried so far?"

"Seventeen," said the voice.

"And they all f. ed?"

"Yes."

"What happened to the seventeen people you took before? After they failed, I mean."

"They died," said the voice.

Roger yipped. "Died! Good heavens, why?"

"Because they failed," said the voice.

"Why, that's *terrible!*" cried Roger. "None of those people did anything to you. That's unfair and immoral and . . . and . . . and *murderous,* that's what it is." Roger folded his arms in determination. "And I'll have nothing more to do with it," he said.

The voice made no comment.

"I suppose you'll murder me now," said Roger hesitantly. He glanced at the wall. "Will you?"

"No," said the voice.

"Well, if you think I'm going to sit here," said Roger, bounding to his feet, "and wait for you to decide to murder me, you're sadly mistaken." He looked wildly around the room, and noticed the silver door

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

again. "I'm leaving." he said. "Do you hear me?"

"Yes," said the voice.

"Bah," said Roger. He advanced to the door and stood looking at it. There was no knob, but there was a depression in the surface, at waist-height, near the right edge. Roger touched the depression and pushed, and nothing happened. He tried to pull, and nothing happened. Then he pushed to the left, and the door slid back into the wall.

Roger stood looking into the next room. It was exactly like the one he was now standing in, except that there was another door in the opposite wall, rather than a window. Otherwise, everything was the same, the color scheme, the bed, the bedside table and the calendar-clock.

Roger sourly surveyed the room, and a dirty suspicion came to him. "Is here another room like this beyond that next door?" he asked.

Two voices answered, one from each room, and both of them said, "Yes."

"And another one beyond that?"

"Yes," said the voices.

"The window, then," said Roger. He pushed the door closed again, turned, and strode to the window. Experimental prodding and pushing and pulling demonstrated to him that the window wouldn't open. And he already knew it wouldn't break.

He was a prisoner. The door and window had made it seem less like a prison, but they had turned out to be frauds. He could go nowhere.

"I want to go *home!*" he shouted all at once. "I'm *sick* of this!"

No answer.

"Seventeen people," muttered Roger. "They all failed. Why should you expect *me* to succeed? It just isn't fair. Besides, what could I possibly know that the people of this time don't know?"

"Restricted," said the voice.

"Oh, shut up! Here. Look at this window, look at this floor. We couldn't build anything like this in my time. Look at that city out there. The New York in my time is greasy and grimy and dirty, not like this at all. And we could never make a bed that hovers eighteen inches off the floor."

He picked up the calendar-clock, to put it back on the table where it belonged, and noticed that it bore no marks as a result of being tossed around by Roger and the window. "Fluoryl plastic, I suppose," he mumbled. "Looks brand new, but it might be twenty or thirty years old, the way it takes punishment." He looked up. "How old is this?"

"One hundred and twelve years," said the voice.

"A hundred and twelve years old?"

"Yes."

"That's fantastic." Roger looked at the calendar-clock, which seemed so brand new, and set it down on the bedside table. "How about the bed?" he asked. "How old is that?"

"Ninety-seven years," said the voice.

"That old? What, have you given me nothing but antiques?"

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Yes," said the voice.

"Why?"

"Restricted," said the voice.

"Restricted? Now, why on earth should that be restricted?"

"Restricted," said the voice.

"Oh, do be quiet a minute. Sometimes, I'm asking *myself* questions, and you don't have to answer. In fact, I wish you wouldn't answer." Roger frowned. "Now," he said, "the answer must lie somewhere in this stuff that you call restricted. So the thing to do is ask you lots of questions, and whenever you say, 'restricted,' write down that question, and pretty soon all the questions will add up to an answer. I hope."

He looked over at the wall. "May I have paper and pencil?" he asked.

"Yes," said the voice.

Roger waited, but nothing happened. "Oh," he said. "I see. We're on an Easter-egg hunt. Is there pencil and paper in this room?"

"Yes," said the voice.

"Under the bed?"

"No."

Roger looked around, spied the bedside table, and said, "Ah hah!" He fingered the table until he found the drawer he knew must be in there, and took out the pen and notebook. He sat down on the edge of the bed, opened the notebook, and wrote "Antiques." Then he looked up at the wall. "What about the room?" he asked. "Is that an antique, too?"

"Yes," said the voice.

"How old is this building?"

"One hundred and twenty-one years," said the voice.

"Is it the oldest building in New York?"

"No."

"The youngest?"

"No."

"How old *is* the youngest building in New York?"

The voice hesitated, as though checking the facts, and said, "Ninety-eight years."

Roger blinked. "Ninety-eight years!" He was suddenly excited, sure that he was on the trail. "You've forgotten how to build things," he shouted. "That's it, that's it! Everything here was built or manufactured generations ago, and now you've all forgotten how, and you want me to tell you how. Isn't that it?"

"No," said the voice.

Roger, about to go into an impromptu dance, faltered and sagged. "No?" he echoed hollowly.

"No," said the voice.

Roger said four unprintable words, at the top of his voice, and kicked the bed. That hurt, so he sat down, calmed himself, picked up the pen and notebook and decided to try some other line of questioning.

What about the seventeen people? He could ask questions about them, maybe. "Were the other seventeen all from 1960?" he asked.

"No," said the voice.

"Oh. Well, were they all from New York?"

"No."

"Were they all from the United States?"

"No."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Oh, balderdash! No, no, no, all the time no, it's enough to drive a body to distraction! Were they all from the Twentieth Century, at least, for pity's sake?"

"Yes," said the imperturbable voice.

"Well! At last. *Why* were they all from the Twentieth Century?"

"Restricted," said the voice.

"Hah," said Roger, and made a quick notation. "What you've lost or forgotten," he said. "Can I assume it was something that was discovered in the Twentieth Century?"

"No," said the voice.

"Well, perfected in the Twentieth Century?"

"Yes," said the voice.

"Hm-m-m," said Roger, making another notation. "Something perfected in the Twentieth Century. You mean a machine, or something like that?"

"No."

"Not a machine. Hm-m-m." Roger stroked his chin, where he had never successfully grown a beard. "Something perfected in the Twentieth Century," he murmured thoughtfully. "Not a machine." He had always liked charades and guessing games and word games of all sorts, and was now in the swing of it, the unusual circumstances and the hinted-at dire consequences of failure alike forgotten.

"A lot of politics in the Twentieth Century," he told himself. "Maybe one of the political theories." He looked over at the wall. "One of the political theories, is that what you're looking for?"

"No," said the voice.

"Nothing political," reflected Roger. "I wish I knew the categories. Let's see, it must have something to do with the fact that all the buildings are old. And are all the machines and manufactured things old, too? Like the bed and clock?"

"Yes," said the voice.

"That has something to do with it," said Roger assuredly. "And, come to think of it, so has this question-answer business, one way or another. By the way, how old is the time machine that brought me here?"

"Just one hundred years old exactly," said the voice.

"And how long ago did you start kidnaping people from the Twentieth Century?"

"Eight years ago."

"And I'm the absolute first one who's been put through this Twenty Questions routine?"

"Yes."

"I take it that with the other seventeen, *you* asked the questions and *they* gave the answers, and the answere weren't the right ones, so you've decided to turn it around and see if it works better this way. Is that right?"

"Yes," said the voice.

"I don't see why you have to murder people for failing," said Roger. "Why do you?"

"It gives them incentive," said the voice.

"Incentive," repeated Roger, and his eyes suddenly widened. "Incentive!" he cried. "But it didn't give them incentive enough, did it?"

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"No."

"It wasn't the right kind of problem for a Twentieth Century man, isn't that it?"

"Yes."

"And *that's* why you're trying this different method with me. You're looking for a problem that suits Twentieth Century man. Right?"

"Yes," said the voice.

Roger nodded emphatically. "Of course. That's the whole point. You want to see a Twentieth Century man solving a problem. Why? Because *that's* what you've forgotten." He beamed, smacked his right fist into his left palm, and strode up and down the room like a successful pirate on the top deck of a freshly-captured brig. "Now listen," he said briskly. "This is a question, and a complicated one, and I don't want you to answer till I'm finished. Do you understand me?"

"Yes," said the voice.

"For thousands of years," said Roger, "people lived lives almost totally devoid of change. Major changes, in politics or economics or society or whatever, took tens or hundreds of years. Changes in knowledge took as long or longer. Beginning in the Eighteenth Century, though, things were suddenly speeded up. Changes came more rapidly, knowledge increased by leaps and bounds, age-old problems in almost every field were solved. By the Twentieth Century, Man was even going out *looking* for problems to solve. From a creature which resisted change, which believed that its own order of things was the only possible order—like Aristotle convinced that the city state was the last word in government—Man became a creature searching for change, driving after change, to the point where sometimes he was shouting, 'Change for change's sake!' Right so far?"

"Yes," said the voice.

"All right," said Roger. He couldn't keep still, he was pacing back and forth, waving his arms and nodding his head vigorously as he spoke, feeling more powerful and confident than he had ever felt before in his life. He was, after all, a representative of the Twentieth Century. And, if his guess was right, the Twentieth Century had turned out to be Man's Golden Age after all. It was enough to make anyone feel strong and proud.

"Mankind," declaimed Roger, "is like a pool of water. For thousands of years, it lies placid, changed only by the slow unnoticeable effects of rain and evaporation. Then something—the scientific method or the Industrial Revolution or the opening of the Western Hemisphere or whatever—something dropped a pebble into the pool, and it rippled and changed all over its surface. Political ideologies came up from everywhere. Scientific theories sprang into life. Diseases were conquered, machines invented, philosophies coined."

Roger stopped, struck a pose, and raised one emphatic finger. *"But,"* he said firmly, "it could not last. The ripples would have to die down. The

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

energy for change would have to burn itself out. By the Twentieth Century, that energy was at its peak. A hundred years later, the energy was gone." He whirled to face the wall. "Am I right?" he demanded.

"You are right," said the voice.

"There is a difference between a field lying fallow," said Roger, suddenly full of allegory, "and a field burned-out and overrun with weeds. Man could not go back to what he had been before the stone was cast into the pool, because now he had the example of the Twentieth Century to show him what he could and should be. We in my time had expected Man to have seeded the stars by now, to have finished the conquering of disease and old age, to have perfected his science and his politics and his human relations." He pointed an accusing finger at the wall. "But you haven't. You've run down, you've stagnated. Mankind got only so far, and then stopped like an unwound watch. That's it, isn't it? You've stagnated."

"Yes," said the voice.

"A different kind of stagnation from that of the centuries preceding the Eighteenth. You've learned nothing new in the last hundred years, have you?"

"No," said the voice.

"You haven't gone out to the stars, have you? You haven't solved the problems of sound government, you haven't progressed in science or human relations. No. You've stopped, and now you're sliding downhill. The peoples of the Southern Hemisphere are moving across the equator to conquer you, aren't they? And ancient diseases, once wiped out, are reappearing. Population is growing smaller every year, with fewer and fewer births and more and more suicides, because life has become so essentially meaningless. You can no longer move forward, but it is no longer sufficient to stand still. *Am I right?*"

"Yes," said the voice.

"Of course I am," said Roger. He couldn't remember when he'd felt so completely sure of himself, so totally in control. "And that's why you steal people from the Twentieth Century. Because *they* still have the energy for change, and you want to find out how to get it for yourself. You've asked them straight out, and they couldn't give you any answer that would satisfy you. You've probably tortured one or two of them, and still got nowhere. You've undoubtedly vivisected a couple, looking for the progress-spark the way the ancient doctors searched for the soul, and you haven't found a thing. So this time you gave your Twentieth Century man a problem to solve, and told yourselves that you'd learn how to do it by watching me. Is that right?"

"Yes," said the voice.

"And have you learned anything?"

"No," said the voice. "The process of your thinking is not understandable."

"Still," said Roger, "I've solved the problem. So now you can send me back to my own time. Right?"

"No," said the voice.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Roger frowned. "Why not? Oh, wait, never mind. I see. You won't let me go home until I've also solved *your* problem. That's it, isn't it?"

"Yes," said the voice.

"Simplicity itself," said Roger. He bestowed upon the wall a superior smirk. "Stop running to the Twentieth Century for help," he said, "and stand on your own two feet. It's the only way. Now send me home." And he lay down on the bed.

"Same answer," said the voice, "given by the other seventeen. Answer unsatisfactory."

Roger sat bolt upright. *"Unsatisfactory?* But it's the *only* answer!" The silence following that statement was suddenly ominous, and Roger remembered the voice's laconic answer concerning the fate of the previous seventeen: "They died."

"Wait . . . wait . . . wait a minute now," said Roger hastily. He jumped from the bed and backed away toward the window. "Don't do anything, now," he told the wall.

He waited, looking apprehensively from wall to door and back. As the seconds collected into minutes and the voice didn't do anything, and nothing came through the door, he gradually calmed. "That isn't the answer," he whispered to himself. "There must be another one. There *must* be another one." With sudden doubt, he squinted at the wall. *"Is* there another one?"

"It is assumed," said the voice, "that there is an answer, and that the progress of the Twentieth Century is based upon it."

"Assumed," echoed Roger. He tried to think, and absolutely nothing happened. "How would *I* know?" he asked himself, and the voice, unbidden, answered, "You are a product of that time."

"Yes, but I'm a *designer*. I don't know anything about science or progress or anything like that. All I know is designing. What you need is a scientist, or a sociologist, or a—"

He stopped, suddenly hopeful. "Maybe," he whispered. "Maybe, just maybe." He looked at the wall again, and asked, "This search you're making. Who's actually behind it, the *people* or the *machines?*"

"The machines," said the voice.

"The people are too self-satisfied to worry, is that it?"

"Yes," said the voice.

"Then I know what you should do." He said it with great confidence and assurance, though he had no idea whether he was right or wrong. "I have one more use for your time machine," he said. "After you send me home, I mean. There's somebody else you should bring here. Then you should destroy the time machine, and make it impossible to build another one. So he'll know he won't be able to get back, he'll just have to build a new life for himself here." And also, he thought, so you can't come get me if this doesn't work. Aloud, he added, "Then you should put yourselves completely in this man's hands. All the machines should do exactly as he tells them. Let him know he's boss, the minute he gets here. Got that?"

"Yes," said the voice, and some-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

how the monotone monosyllable managed to sound doubtful.

"What you people need," said Roger positively, "is a leader. Look at the Twentieth Century. It was the time of leaders, of mass movements and conflicting ideologies. Every leader had a bunch of theories for how to make human society work. All the stir and commotion that was brought on by this was what forced change and progress. The people of the Twenty-second Century don't have anything to get all stirred up over. They don't have a leader, somebody to give them a reason to *look* for change, somebody who'll push them toward change whether—" He faltered, since he'd been going to say, "whether they like it or not," and had realized just in time that that wasn't what the machines had in mind. Instead, he finished, "they fully understand his methods or not."

For the first time, the voice spoke without being asked a question. "We had decided," it said, "that the change would have to be made within the people of our own time. We are looking for a way to make them similar—"

"I know, I know," interrupted Roger. "That's where you're making your mistake. They *are* similar already. You've had seventeen failures. Don't you see what that means? The people of my century are exactly the same as the people of yours. The only difference is that they have leaders. Without a leader, they act just the way the people of this time do."

"Of course," said the voice. It had apparently given up the practice of speaking only when asked questions. "The failure of the other seventeen puzzled us. We hadn't expected it from Twentieth Century men. Do you have a particular leader in mind?"

"Certainly," said Roger, though he didn't. He thought rapidly. A sociologist? A physicist? A—

All at once, he smiled. "I have solved your problem," he said with finality. "And mine." And everybody else's, he added to himself. "I don't think he speaks English, though," Roger said. "He speaks Russian. But I can positively assure you that there will be a great change here if you bring him."

"That's all right," said the voice.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

(Continued from page 82)
the agency behind the flashes might be Russian, and it might not be Russian."

"That clears that up nicely," Boyd said. "Next question?"

"The next one," Malone said grimly, "is: what's behind the flashes? Some sort of psionic power is causing them—that much is obvious."

"I'll go along with that," Boyd said. "I have to go along with it. But don't think I like it."

"Nobody likes it," Malone said. "But let's go on. O'Connor isn't any help; he washes his hands of the whole business."

"Lucky man," Boyd said.

"He says that it can't be happening," Malone said, "and if it is we're all screwy. Now, right or wrong, that isn't an opinion that gives us any handle to work with."

"No," Boyd said reflectively. "A certain amount of comfort, to be sure, but no handles."

"Sir Lewis Carter, on the other hand—" Malone said. He fumbled through some of the piles of paper until he had located the ones the President of the Psychical Research Society had sent. "Sir Lewis Carter," he went on, "does seem to be doing some pretty good work. At least, some of the more modern stuff he sent over looks pretty solid. They've been doing quite a bit of research into the subject, and their theories seem to be all right, or nearly all right, to me. Of course, I'm not an expert—"

"Who is?" Boyd said. "Except for O'Connor, of course."

"Well, somebody is," Malone said. "Whoever's doing all this, for instance. And the theories do seem O.K. In most cases, for instance, they agree with O'Connor's work—though they're not in complete agreement."

"I should think so," Boyd said. "O'Connor wouldn't recognize an Astral Plane if TWA were putting them into service."

"I don't mean that sort of thing," Malone said. "There's lots about astral bodies and ghosts, ectoplasm, Transcendental Yoga, theosophy, deros, the Great Pyramid, Atlantis, and other such pediculous pets. That's just silly, as far as I can see. But what they have to say about parapsychology and psionics as such does seem to be reasonably accurate."

"I suppose so," Boyd said tiredly.

"O.K., then," Malone said. "Did anybody notice anything in that pile of stuff that might conceivably have any bearing whatever on our problems?"

"I did," Boyd said. "Or I think I did."

"You both did," Her Majesty said. "And so did I, when I looked through it. But I didn't bother with it. I dismissed it."

"Why?" Malone said.

"Because I don't think it's true," she said. "However, my opinion is really only an opinion." She smiled around at the others.

Malone picked up a thick sheaf of papers from one of the piles of his desk. "Let's get straight what it is

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

we're talking about," he said. "All right?"

"Anything's all right with me," Boyd said. "I'm easy to please."

Malone nodded. "Now, this writer . . . what's his name?" he said. He glanced at the copy of the cover page. "'Minds and Morons'," he read. "By Cartier Taylor."

"Great title," Boyd said. "Does he say which is which?"

"Let's get back to serious business," Malone said, giving Boyd a single look. There was silence for a second, and then Malone said: "He mentions something, in the book, that he calls 'telepathic projection.' As far as I understand what he's talking about, that's some method of forcing your thoughts on another person." He glanced over at the Queen. "Now, Your Majesty," he said, "you don't think it's true—and that may only be an opinion, but it's a pretty informed one. It seems to me as if Taylor makes a good case for this 'telepathic projection' of his. Why don't you think so?"

"Because," Her Majesty said flatly, "it doesn't work."

"You've tried it?" Boyd put in.

"I have," she said. "And I have had no success with it at all. It's a complete failure."

"Now, wait a minute," Boyd said. "Just a minute."

"What's the matter?" Malone said. "Have you tried it, and made it work?"

Boyd snorted. "Fat chance," he said. "I just want to look at the thing, that's all." He held out his hand, and Malone gave him the sheaf of papers. Boyd leafed through them slowly, stopping every now and again to consult a page, until he found what he was looking for. "There," he said.

"There, what?" Malone said.

"Listen to this," Boyd said. "'For those who draw the line at demonic possession, I suggest trying telepathic projection. Apparently, it is possible to project one's own thoughts directly into the mind of another—even to the point of taking control of the other's mind. Hypnotism? You tell me, and we'll both know. Ever since the orthodox scientists have come around to accepting hypnotism, I've been chary of it. Maybe there really is an astral body or a soul that a person has stashed about him somewhere—something that he can send out to take control of another human being. But I, personally, prefer the telepathic projection theory. All you have to do is squirt your thoughts across space and spray them all over the fellow's brain. Presto-bingo, he does pretty much what you want him to do.'"

"That's the quote I was thinking of," Malone said.

"Of course it is," Her Majesty said. "But it really doesn't work. I've tried it."

"How have you tried it?" Malone said.

"There were many times, Sir Kenneth," Her Majesty said, "when I wanted someone to do something particular—for me, or for some other person. After all, you must remember that I was in a hospital for a long

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

time. Of course, that represents only a short segment of my life span, but it seemed long to me."

Malone, who was trying to view the years from age fifteen to age sixty-odd as a short segment of anybody's lifetime, remembered with a shock that this was not Rose Thompson speaking. It was Queen Elizabeth I, who had never died.

"That's right, Sir Kenneth," she said kindly. "And in that hospital, there were a number of times when I wanted one of the doctors or nurses to do what I wanted them to. I tried many times, but I never succeeded."

Boyd nodded his head. "Well—" he began.

"Oh, yes, Sir Thomas," Her Majesty said. "What you're thinking is certainly possible. It may even be true."

"What *is* he thinking?" Malone said.

"He thinks," Her Majesty said, "that I may not have the talent for this particular effect—and perhaps I don't. But, talent or not, I know what's possible and what isn't. And the way Mr. Taylor describes it is simply silly, that's all. And unladylike. Imagine any self-respecting lady 'squirting' her thoughts about in space!"

"Well," Malone said carefully, "aside from its being unladylike—"

"Sir Kenneth," Her Majesty said, "you are not telepathic. Neither is Sir Thomas."

"I'm nothing," Boyd said. "I don't even exist."

"And it is very difficult to explain to the nontelepath just what Mr. Taylor is implying," Her Majesty went on imperturbably. "Before you could inject any thoughts into anyone else's mind, you'd have to be able to see into that mind. Is that correct?"

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"I guess so," Malone said.

"And in order to do that, you'd have to be telepathic," Her Majesty said. "Am I correct?"

"Correct," Malone said.

"Well, then," Her Majesty said with satisfaction, and beamed at him.

A second passed.

"Well, then, what?" Malone said in confusion.

"Telepathy," Her Majesty said patiently, "is an extremely complex affair. It involves a sort of meshing with the mind of this other person. It has nothing—absolutely nothing—in common with this simple 'squirting' of thoughts across space, as if they were orange pips you were trying to put into a wastebasket. No, Sir Kenneth, I cannot believe in what Mr. Taylor says."

"But it's still possible," Malone said.

"Oh," Her Majesty said, "it's certainly possible. But I should think that if any telepaths were around, and if they were changing people's minds by 'squirting' at them, I would know it."

Malone frowned. "Maybe you would at that," he said. "I guess you would."

"Not to mention," Boyd put in, "that if you were going to control everything we've come across like that you'd need an awful lot of telepathic operators."

"That's true," Malone admitted. "And the objections seem to make some sense. But what else is there to go on?"

"I don't know," Boyd said. "I haven't the faintest idea. And I'm rapidly approaching the stage where I don't care."

"Well," Malone said, heaving a sigh, "let's keep looking."

He bent down and picked up another sheaf of copies from the Psychical Research Society.

"After all," he said, without much hope, "you never know."

VII

Malone looked around the office of Andrew J. Burris as if he'd never seen it before. He felt tired, and worn out, and depressed; it had been a long night, and here it was morning and the head of the FBI was talking to him about his report. It was, Malone told himself heavily, a hell of a life.

"Now, Malone," Burris said in a kindly voice, "this is a very interesting report."

"Yes, sir," Malone said automatically.

"A very interesting report indeed, Kenneth," Burris went on, positively bursting with good-fellowship.

"Thank you, sir," Malone said dully.

Burris beamed a little more. "You've done a fine job," he said, "a really fine job. Hardly on the job any time at all, and here you've managed to get all three of the culprits responsible."

"Now, wait a minute," Malone said in sudden panic. "That isn't what I said."

"No?" Burris said, looking a little surprised.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Not at all," Malone said. "I don't think those three spies have anything to do with this at all. Not a thing."

There was a brief silence, during which Burris' surprise seemed to expand like a gas and fill the room. "But they've confessed," he said at last. "Their job was to try and get information, and also to disrupt our own work here."

"I know all that," Malone said. "But—"

Burris held up a pink, patient hand. Malone stared at it, fascinated. It had five pink, patient fingers on it. "Malone," Burris said slowly, "just what's bothering you? Don't you think those men *are* spies? Is that it?"

"Spies?" Malone said, slightly confused.

"You know," Burris said. "The men you arrested, Malone. The men you wrote this report about."

Malone blinked and focused on the hand again. It still had five fingers. "Sure they are," he said. "They're spies, all right. And they're caught, and that's that. Except I don't think they're causing all the confusion around here."

"Well, of course they're not," Burris said, the beam of kindliness coming back to his face. "Not any more. You caught them."

"I mean," Malone said desperately, "they never were. Even before I caught them."

"Then why," Burris said with great patience, "did you arrest them?"

"Because they're spies," Malone said. "Besides, I didn't."

"Didn't what?" Burris said, looking confused. He seemed to realize he was still holding up his hand, and dropped it to the desk. Malone felt sad as he watched it go. Now he had nothing to concentrate on except the conversation, and he didn't even want to think about what was happening to that.

"Didn't arrest them," he said. "Tom Boyd did."

"Acting," Burris pointed out gently, "under your orders, Kenneth."

It was the second time Burris had called him Kenneth, Malone realized. It started a small warning bell in the back of his mind. When Burris called him by his first name, Burris was feeling paternal and kindly. And that, Malone thought determinedly, boded Kenneth J. Malone very little good indeed.

"He was under my orders to arrest them because they were spies," he said at last. He wondered if the sentence made any real sense, but shrugged his shoulders and plunged on. "But they're not the real spies," he said. "Not the ones everybody's been looking for."

"Kenneth," Burris said, his voice positively dripping with what Malone thought of as the heavy, Grade A, Government-inspected cream of human kindness, "all the confusion with the computer-secretaries has stopped. Everything is running fine in that department."

"But—" Malone began.

"The technicians," Burris said, hypnotized by this poem of beauty, "aren't making any more mistakes.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

The information is flowing through beautifully. It's a pleasure to see their reports. Believe me, Kenneth—"

"Call me Chief," Malone said wearily.

Burris blinked. "What?" he said. "Oh. Ha. Indeed. Very well, then: Malone, what more proof do you want?"

"Is that proof?" Malone said. "The spies didn't even confess to that. They—"

"Of course they didn't, Malone," Burris said.

"Of course?" Malone said weakly.

"Look at their confessions," Burris said. "Just look at them, in black and white." He reached for a sheaf of papers and pushed them across the desk. Malone looked at them. They were indeed, he told himself, in black and white. There was no arguing with that. None at all.

"Well?" Burris said after a second.

"I don't see anything about computer-secretaries," Malone said.

"The Russians," Burris began slowly, "are not stupid, Malone. You believe that, don't you?"

"Of course I believe it," Malone said. "Otherwise we wouldn't need an FBI."

Burris frowned. "There are still domestic cases," he said. "Like juvenile delinquents stealing cars interstate, for instance. If you remember." He paused, then went on: "But the fact remains: Russians are not stupid. Not by a long shot."

"All right," Malone said agreeably.

"Do you really think, then," Burris said instantly, "that a spy ring could be as utterly inefficient as the one described in those confessions?"

"Lots of people are inefficient," Malone said.

"Not spies," Burris said with decision. "Do you really believe that the Russians would send over a bunch of operatives as clodheaded as these are pretending to be?"

"People make mistakes," Malone said weakly.

"Russian spies," Burris said, "do not make mistakes. Or, anyhow, we can't depend on it. We have to depend on the fact that they're operating at peak efficiency, Malone. Peak."

Malone nearly asked: "Where?" but controlled himself at the last minute. Instead, he said: "But the confessions are right there. And, according to the confessions—"

"Do you really believe," Burris said, "that a trio of Soviet agents would confess everything as easily as all that if they didn't intend to get something out of it? Such as, for instance, covering up their methods of doing damage? And do you really believe —"

Malone began to feel as if he were involved in the Athanasian Creed. "I don't think the spies are the real spies," he said stubbornly. "I mean the spies we're all looking for."

"Do you mean to stand there and tell me," Burris went on inexorably, "that you take the word of spies when they tell you about their own activities?"

"Their confessions—"

"Spies can lie, Malone," Burris said

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

gently. "As a matter of fact, they usually do. We have come to depend on it as one of the facts of life."

"But Queen Elizabeth," Malone said stubbornly, "told me they weren't lying." As he finished the sentence, he suddenly realized what it sounded like. "You know Queen Elizabeth," he said chummily.

"The Virgin Queen," Burris said helpfully.

"I wouldn't know," Malone said, feeling uncomfortable. "I mean Rose Thompson. She thinks she's Queen Elizabeth and I just said it that way because—"

"It's all right, Malone," Burris said softly. "I know who you mean."

"Well, then," Malone said. "If Queen Elizabeth says the spies aren't lying, then—"

"Then nothing," Burris said flatly. "Miss Rose Thompson is a nice, sweet, little old lady. I admit that."

"And she's been a lot of help," Malone said.

"I admit that, too," Burris said. "But she is also somewhat battier, Malone, than the entire Order Chiroptera, including Count Dracula and all his happy friends."

"She only thinks she's Queen Elizabeth I," Malone said defensively.

"That," Burris said, "is a large sort of *only*. Malone, you've got to look at the facts sensibly. Square in the face."

Malone pictured a lot of facts going by with square faces. He didn't like the picture. "All right," he said.

"Things are going wrong in the Congressional computer-secretaries," Burris said. "So I assign you to the case. You come back to me with three spies, and the trouble stops. And what other information have you got?"

"Plenty," Malone said, and stopped for thought. There was a long pause.

"All this business about mysterious psionic faculties," Burris said, "comes direct from the testimony of that sweet little old twitch. Which she is. Dr. O'Connor, for instance, has told you in so many words that there's no such thing as this mysterious force. And if you don't want to take the word of the nation's foremost authority, there's this character from the Psychical Research Society—Carter, or whatever his name is. Carter told you he'd never heard of such a thing."

"But that doesn't mean there isn't such a thing," Malone said.

"Even your own star witness," Burris said, "even the Queen herself, told you it couldn't be done."

"Nevertheless—" Malone began. But he felt puzzled. There was no way, he decided, to finish a sentence that started with *nevertheless*. It was the wrong kind of word.

"What are you trying to do?" Burris said. "Beat your head against a stone wall?"

Malone realized that that was just what he felt like. Of course, Burris thought the stone wall was his psionic theory. Malone knew that the stone wall was Andrew J. Burris. But it didn't matter, he thought confusedly. Where there's a stone, there's a way.

"I feel," he said carefully, "like a man with a stone head."

"And I don't blame you," Burris

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

said in an understanding tone. "Here you are trying to make evidence to fit your theories. What real evidence is there, Malone, that these three spies . . . these three comic-opera spies—are innocent?"

"What evidence is there that they're guilty?" Malone said. "Now, listen, Chief—"

"Don't call me Chief," Burris murmured.

"Another five minutes," Malone said in a sudden rage, "and I won't even call you."

"Malone!" Burris said.

Malone swallowed hard. "Sorry," he said at last. "But isn't it just barely possible that these three spies aren't the real criminals? Suppose you were a spy."

"All right," Burris said. "I'm a spy." Something in his tone made Malone look at him with a sudden suspicion. Burris, he thought, was humoring him.

Is it possible, Malone asked himself, that *I* am the one who is as a little child?

Little children, he told himself with decision, do not capture Russian spies and then argue about it. They go home, eat supper and go to bed.

He stopped thinking about sleep in a hurry, and got back to the business at hand. "If you were a spy," he said, "and you knew that a lot of other spies had been arrested and charged with the crimes you were committing, what would you do?"

Burris appeared to think deeply. "I would celebrate," he said at last, in a judicious tone.

"I mean, would you just go on with the same crimes?" Malone said.

"What are you talking about, Malone?" Burris said cautiously.

"If you knew we'd arrested Brubitsch, Borbitsch and Garbitsch," Malone went on doggedly, "you'd lay off for a while, just to make us think we'd caught the right men. Doesn't that make sense?"

"Of course it makes sense," Burris said in what was almost a pitying tone. "But don't push it too far. Malone, I want you to know something."

Malone sighed. "Yes, sir?" he said.

"Contrary to popular opinion," Burris said, "I was not appointed Director of the Federal Bureau of Investigation just because I own a Hoover vacuum cleaner."

"Of course not," Malone said, feeling that something of the sort was called for.

"And I think you ought to know by now," Burris went on, "that I wouldn't fall for a trick like that any more than you would. There are obviously more members in this spy ring. Brubitsch, Borbitsch and Garbitsch are just a start."

"Well, then—" Malone began.

"*I'm* not going to be taken in by what these three say," Burris said. "But now, Malone, we know what to look for. All we have to do is pretend to be taken in. Get it?"

"Sure," Malone said. "We pretend to be taken in. And in the meantime I can go on looking for—"

"We don't have to look for anything," Burris said calmly.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Malone took a deep breath. Somehow, he told himself, things were not working out very well. "But the other spies—"

"The next time they try anything," Burris said, "we'll be able to reach out and pick them up as easy as falling off a log."

"It's the wrong log!" Malone said.

Burris folded his hands on the desk and looked at them for a second, frowning slightly like a psychiatrist. "Malone," he said at last, "I want you to listen to me. Calmly. Coolly. Collectedly."

Malone shrugged. "All right," he said. "I'm calm and cool."

"And collected," Burris added.

"That, too," Malone said vaguely.

"Malone," Burris began, "you've got to get rid of this idea that everything the FBI investigates these days is somehow linked with psionics. I know you've done a lot of work in that connection—"

"Now, wait a minute," Malone said. "There are those errors. How did the technicians feed the wrong data into the machines?"

"Errors do happen," Burris said. "If I slip on a banana peel, do I blame psionics? Do I even blame the United Fruit Growers? I do not, Malone. Instead, I tell myself that errors do happen. All the time."

"Now," Malone said, "you've contradicted yourself."

"I have?" Burris said with a look of complete surprise.

"Sure," Malone said. He leaned forward across the desk. "If the errors were just ordinary accidental errors, then how were the spies responsible? And why did they stop after the spies were arrested? When you slip on a banana peel, does it matter whether or not the United Fruit Growers are out on strike?"

"Oh," Burris said.

"You see?" Malone said. "You've gone and contradicted yourself." He felt victorious, but somewhere in the back of his mind was the horrible sensation that someone was about to come up behind him and hit him on the head with a wet sock full of old sand.

A long second passed. Then Burris said: "Oh. Malone, I forgot to give you the analysis report."

That, Malone realized dimly, was supposed to be the wet sock. Fate, he told himself, was against him. Anyhow, something was against him. It was a few seconds before he came to the conclusion that what he had heard didn't really make any sense. "Analysis report?" he said.

"On the water cooler," Burris explained cheerfully.

"There is an analysis report on a water cooler," Malone said. "Everything now becomes as clear as crystal." He heard his voice begin to rise. "You analyzed a water cooler and discovered that it was a Siberian spy in disguise," he said, trying to make himself sound less hysterical.

"No, no," Burris said, pushing at Malone with his palms. "The water in it, Malone. The water in it."

"No Siberian spy," Malone said with decision, "could disguise himself as the water in a water cooler."

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"I didn't say that," Burris went on. "But what do you think was in that water cooler, Malone?"

"Water," Malone said. "*Cool* water."

"Congratulations," Burris said, in the hearty tones usually reserved for announcers on programs where housewives win trips to Nome. "You are just a shade less than ninety-nine point nine nine per cent correct."

"The rest of the water," Malone hazarded, "was warm?"

"The rest of the water," Burris said, "wasn't water. Aside from the usual minerals, there was also a trace of one of the psychodrugs."

The word seemed to hang in mid-air, like somebody's sword. Malone knew perfectly well what the psychodrugs were. Over the past twenty years, a great number of them had been developed by confused and anxious researchers. Some were solids, some liquids and a few gaseous at normal temperatures. Some were weak and some were highly potent. Some were relatively innocuous, and quite a few were as deadly as any of the more common poisons. They could be administered by mouth, by injection, by spray, as drops, grains, whiffs or in any other way conceivable to medical science. But they all had one thing in common. They affected the mental functioning—what seemed to be the personality itself—of the person dosed with them.

The effect of the drugs was, in most cases, highly specific. One might make a normally brave man a craven coward; laboratory tests on that one had presented the interesting spectacle of terrified cats running from surprised, but by no means displeased, experimental mice. Another drug reversed this picture, and made the experimental mice mad with power. They attacked cats in battalions or singly, cheering and almost waving large flags as they went over the top, completely foolhardy in the presence of any danger whatever. Others made man abnormally suspicious and still others disassociated judgment to the point where all decisions were made completely at random.

The FBI had a large file on psychodrugs, Malone knew. But he didn't need the file to see what was coming. He asked the question anyhow, just for the record: "What particular psychodrug was this one?"

"One of the judgment-warpers," Burris said. "Haenlingen's Mixture; it's more or less a new development, but the Russians probably know as much about it as we do. In large doses, the drug affects even the automatic nervous system and throws the involuntary functions out of whack; but it isn't usually used in killing amounts."

"And in the water cooler?" Malone asked.

"There wasn't much of it," Burris said, "but there was enough. The technicians could be depended on to make a great many more mistakes than usual—just how many we can't determine, but the order of magnitude seems about right. It would depend on how much water each one of them drank, of course, and we haven't a chance of getting anything like a

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

precise determination of that now."

"Oh," Malone said. "But it comes out about right, doesn't it?" He felt hopeless.

"Just about," Burris said cheerfully. "And since it was Brubitsch's job to change the cooler jug—"

"Wait a minute," Malone said. "I think I see a hole in that."

"Really?" Burris said. He frowned slightly.

Malone nodded. "Sure," he said. "If any of the spies drank the water—their judgment would be warped, too, wouldn't it?"

"So they didn't drink the water," Burris said easily.

"How can we be sure?" Malone asked.

Burris shrugged. "Why do we have to be?" he said. "Malone, you've got to stop pressing so hard on this."

"But a man who didn't drink water all day would be a little conspicuous," Malone said. "After a while, anyhow."

Burris sighed. "The man is a janitor, Kenneth," he said. "Do you know what a janitor is?"

"Don't baby me," Malone snapped.

Burris shrugged. "A janitor doesn't work in the office with the men," he said. "He can drink out of a faucet in the broom closet—or wherever the faucets might be. Nobody would notice. Nobody would think it odd."

Malone said: "But—" and stopped and thought it over. "All right," he went on at last. "But I still insist—"

"Now, Kenneth," Burris said in a voice that dripped oil. "I'll admit that psionics is new and wonderful and you've done a lot of fine work with it. A lot of very fine work indeed. But you can't go around blaming everything on psionics no matter what it is or how much sense it makes."

"I don't," Malone said, injured. "But—"

"But you do," Burris said. "Lately, you've been acting as though magic were loose in the world. As though nothing were dependable any more."

"It's not magic," Malone said.

"But it is," Burris told him, "when you use it as an explanation for anything and everything." He paused. "Kenneth," he said in a more kindly tone, "don't think I blame you. I know how hard you've been working. I know how much time and effort you've put into the gallant fight against this country's enemies."

Malone closed his eyes and turned slightly green. "It was nothing," he said at last. He opened his eyes but nothing had changed. Burris' expression was still kindly and concerned.

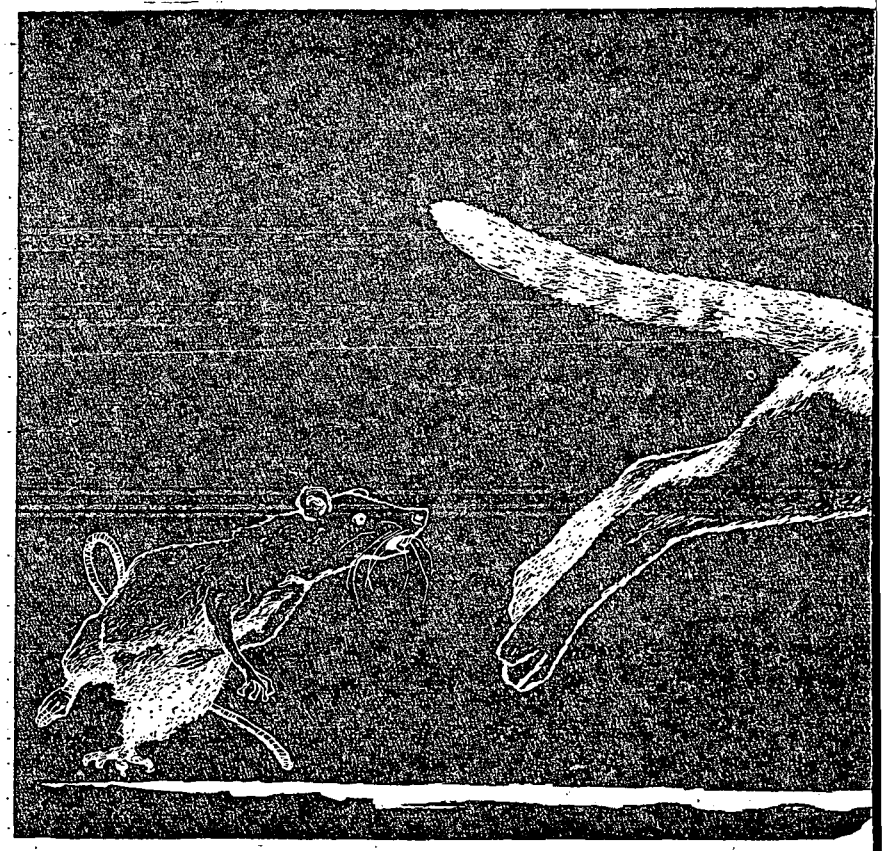
"Oh, but it was," Burris said. "Something, I mean. You've been working very hard and you're just not at peak efficiency any more. You need a rest, Kenneth. A nice rest."

"I do not," Malone said indignantly.

"A lovely rest," Burris went on, oblivious. "Somewhere peaceful and quiet, where you can just sit around and think peacefully about peaceful things. Oh, it ought to be wonderful for you, Kenneth. A nice, peaceful, lovely, wonderful vacation."

Through the haze of adjectives,

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



Malone remembered dimly the last time Burris had offered him a vacation in that tone of voice. It had turned out to be one of the toughest cases he'd ever had: the case of the teleporting delinquents.

"Nice?" Malone said. "Peaceful? Lovely? Wonderful? I can see it now."

"What do you mean, Malone?" Burris said.

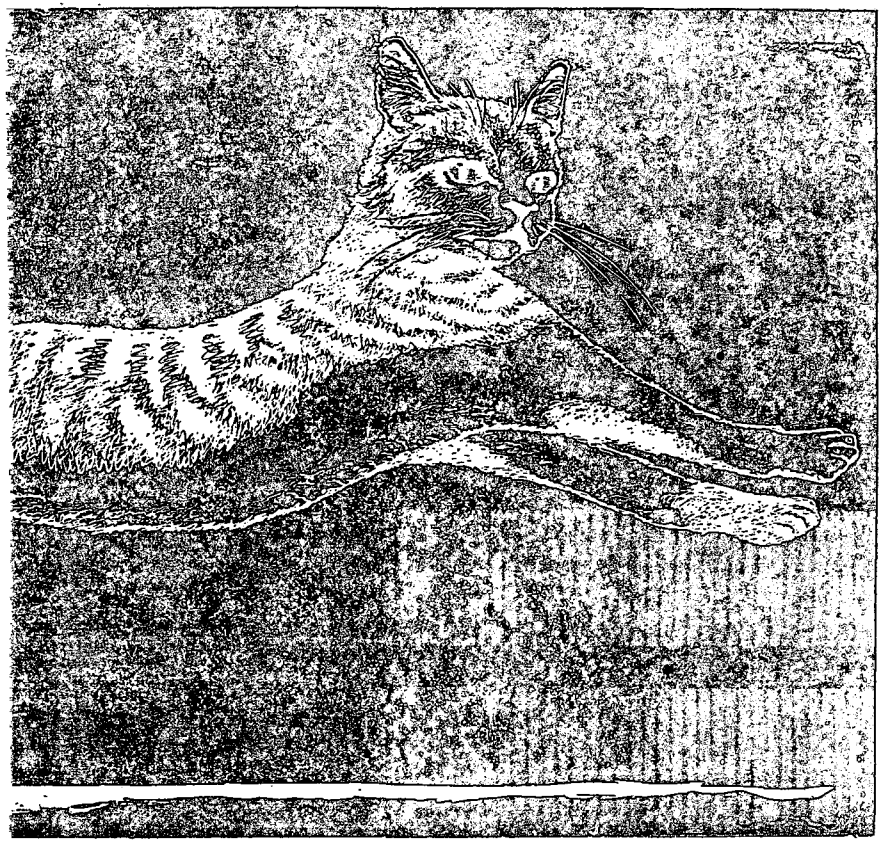
"What am I going to get?" Malone said. "A nice easy job like arresting all the suspected nose-pickers in Mobile, Alabama?"

Burris choked and recovered quickly. "No," he said. "No, no, no. I mean it. You've earned a vacation, Kenneth, a real vacation. A nice, peaceful—"

"Lovely, wonderful vacation," Malone said. "But—"

"You're one of my best agents," Burris said. "I might almost say you're

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



my top man. My very top man. And because of that I've been overworking you."

"But—"

"Now, now," Burris said, waving a hand vaguely. "I have been overworking you, Kenneth, and I'm sorry. I want to make amends."

"A what?" Malone said, feeling confused again.

"Amends," Burris said. "I want to do something for you."

Malone thought about that for a second. Burris was well-meaning, all right, but from the way the conversation was going it looked very much as if "vacation" weren't going to be the right word.

The right word, he thought dismally, was going to be "rest home." Or possibly even "insane asylum."

"I don't want to stop work," he said grimly. "Really, I don't."

"You'll have lots of time to your-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

self," Burris said in a wheedling tone.

Malone nodded. "Sure I will," he said. "Until they come and put me in a wet pack."

Burris blinked, but recovered gamely. "You don't have to go swimming," he said, "if you don't want to go swimming. Up in the mountains, for instance—"

"Where there are nice big guards to watch everything," Malone said. "And nuts."

"Guides," Burris said. "But you could just sit around and take things easy."

"All locked up," Malone said. "Sure. I'll love it."

"If you want to go out," Burris said, "you can go out. Anywhere. Just do whatever you feel like doing."

Malone sighed. "O.K," he said. "When do the men in the white coats arrive?"

"White coats?" Burris said. There was a short silence. "Kenneth," he said, "don't suspect me of trying to do anything to you. This is my way of doing you a favor. It would just be a vacation—going anywhere you want to go, doing anything you want to do."

"Avacado," Malone muttered at random.

Burris stared. "What?"

"Nothing," Malone said shamefacedly. "An old song. It runs through my mind. And when you said that about going where I want to go—"

"An old song with avacados in it?" Burris said.

Malone cleared his throat and burst into shy and slightly hoarse song. "Avacado go where you go," he piped feebly, "do what you do—"

"Oh," Burris said. "Oh, my."

"Sorry," Malone muttered. He took a breath and waited. A second passed.

"Well, Kenneth," Burris said at last, with an attempt at heartiness, "you can do anything you like. The mountains. The seashore. Hawaii. The Riviera. Just go and forget all about gangsters, spies, counter-espionage, kidnapings, mad telepaths, juvenile teleports and anything else like that."

"You forgot water coolers," Malone said.

Burris nodded. "And water coolers," he said, "by all means. Forget about FBI business. Forget about me. Just relax."

It did sound appealing, Malone told himself. But there was a case to finish, and he was sure Burris was finishing it wrong. He wanted to argue about it some more, but he was fresh out of arguments.

And besides, the idea of being able to forget all about Andrew J. Burris for a little while was almost insidious. Malone liked it more the more he thought about it. Burris went on naming vacation spots and drawing magnificent travel-agency pictures of how wonderful life could be, and after a while Malone left. There just wasn't anything else to say. Burris had given him an order for his vacation pay and another guaranteeing travel expenses. Not, he thought glumly, that he would be expected to buy return tickets. Oh, no. Once he'd been to a place he could teleport back, so there would be no point in taking a plane

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

or a train back from wherever he went.

"And suppose I like planes and trains?" he muttered, going on down the hall. But there was nothing he could do about it. He did think of looking for some sympathy, at least, but he couldn't even get much of that. Tom Boyd had apparently already talked to Burris, and was in full agreement with him.

"After all," Boyd said, "there's the drug in the water—and it looks like pretty solid proof to me, Ken."

"It's not proof of anything," Malone said sourly.

"Sure it is," Boyd said. "Why would anybody put it there otherwise?"

Malone shrugged. "Who knows?" he said. "But I'm not surprised you like Burris' theory. Psionics never did make you very happy, did it?"

"Not very," Boyd admitted. "This way, anyhow, I've got something I can cope with. And it makes nice, simple sense. No reason to go and complicate it, Ken. None at all."

Glumly, Malone made his farewells and then teleported himself from the Justice Department Building back to his own apartment. There, slowly and sadly, he began to pack. He hadn't yet decided just where he was going, but that was a minor detail. The important thing was that he *was* going. If the Director of the FBI tells you that you need a rest cure, Malone thought, you do not argue with him. Argument may result in your vacation being extended indefinitely. And that is not a good thing.

Of course, such a "vacation" wouldn't be the end of the world. Not quite. He could even beat Burris to the gun, hand in his resignation and go into private practice as a lawyer. The name of Malone, he told himself proudly, had not been entirely forgotten in Chicago, by any means. But he didn't feel happy about the idea. He knew, perfectly well, that he didn't want to live by trading on his father's reputation. And besides, he *liked* being an FBI agent. It had glamour. It had standing.

It had everything. It even had trouble.

Malone caught his whirling mind and forced it back to a landing. Where, he asked himself, was he going?

He thought about that for a second. Perhaps, as Burris had apparently suspected, he was going nuts. When he considered it, it even sounded like a good possibility.

After all, what evidence *did* he have for his psionic theory? Her Majesty had told him about those peculiar bursts of metal energy, true. But there wasn't anything else. And, come to think of it, wasn't it possible that Her Majesty had slipped just a little off the trolley of her one-track psychosis?

At that thought a quick wave of guilt swept through him. Her Majesty, after all, might be reading his mind from Yucca Flats, where she had returned the previous night, right at that moment. He felt as if he had committed high, middle and low treason all in one great big package, not to mention Jack and the Game, he

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

added disconsolately.

"Nevertheless," he muttered, and stopped. He blinked and started over again. In spite of all that, he told himself, the Burris Theory certainly looked a lot sounder when you considered it objectively.

The big question was whether or not he *wanted* to consider it objectively. But he put this aside for the future, and continued packing slowly and carefully. When at last he snapped shut the last suitcase, he still hadn't made up his mind as to the best spot for a vacation. Images tumbled through his brain: mountains, seacoasts, beaches, beautiful native girls and even a few insane asylums. But nothing definite appeared. He sat down in his favorite easychair, found a cigar and lit it, and luxuriated in the soothing fumes while his mind began to wander.

Her Majesty, he was quite certain, wouldn't lie purposely. Granted, she had misled him now and again, but even when she felt misleading necessary she hadn't lied; she had merely juggled the truth a little. And Malone was sure she would continue to tell him the truth as she knew it.

Of course, that was the stopper: *as she knew it.* And she might have developed another delusion. In which case, he thought sadly, Burris was very probably right.

But she might also be telling the actual truth. And that meant, Malone thought, that little pops of energy were occasionally bursting in various minds. These little pops had an effect, or an apparent effect: they made people change their minds about doing one thing or another.

And that meant—Malone stopped, his cigar halfway to his mouth.

Wasn't it possible that just such a burst of energy had made Burris call him off the case?

It seemed like a long time before the cigar reached his mouth. Malone felt slightly appalled. The flashes that had been going on in his own mind had already been bothering him, and he'd decided that he'd have to check every decision he made to be sure that it was not capricious; now he made a resolve that he'd kept his mental faculties on a perpetual watch for that sort of interference. Of course, it was more than barely possible that he wouldn't notice it if anything happened. But it would be pretty stupid to succumb to that sort of defeatism now, he told himself grimly.

Now that everything was narrowing down so nicely, anyhow, he thought. There were only two real possibilities. Malone numbered them in his mind:

1. Her Majesty has developed a new delusion. In this case, he thought, Burris was perfectly right. I can enjoy a month of free vacation.

2. Her Majesty is no nuttier than before. If this is the case, he thought, then there's more to the case than has appeared, and Kenneth J. Malone, with or without the FBI, is going to get to the bottom of it.

Therefore, he summed up, everything now hinged on whether or not Her Majesty was unhinged.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

That was confusing, but he managed to straighten it out after a second. He put his half-smoked cigar carefully in an ashtray and stood up. He went over to the phone and dialed the special unlisted number of the FBI.

The face that appeared was faintly sallow and looked sad. "Pelham here," it said in the tones of a discouraged horse.

"Hello, Pelham," Malone said. "Kenneth Malone here."

"Trouble?" Pelham said. It was obvious that he expected trouble, and always had, and probably always would.

"Nope," Malone said. Pelham looked even sadder. "Just checking out for vacation. You can tell the Chief I'm going to take off for Las Vegas. I'm taking his advice, tell him; I'm going to carouse and throw my money away and look at dancing girls and smoke and drink and stay out late. I'll let the local office know where I'm staying when I get there, just in case something comes up."

"O.K.," Pelham said unhappily. "I'll check you out." He tried a smile, but it looked more like the blank expression on the face of a local corpse. "Have fun," he said.

"Thanks," Malone said. "I'll try."

But his precognitive sense suddenly rose up on its hind legs as he broke the connection. The attempt to have fun, it told him in no uncertain terms, was going to be a morbid failure.

"Nevertheless," Malone muttered, heaved a great sigh, and started for the suitcase and the door.

VIII

The Great Universal was not the tops in every field. Not by a long shot. As Las Vegas resorts went, as a matter of fact, almost any of them could outdo the Great Universal in one respect or another. The Golden Palace, for instance, had much gaudier gaming rooms. The Moonbeam had a louder orchestra. The Barbary Coast and the Ringing Welkin both had more slot machines, and it was undeniable that the Flower of the West had fatter and pinker dancing girls. The Red Hot, the Last Fling and the Double Star all boasted more waiters and more famous guests per square foot of breathable air.

But the Great Universal, in sheer size, volume of business and elegance of surroundings, outdid any three of the others combined. It stood grandly alone at the edge of the Strip, the grandiloquent Las Vegas version of Broadway or Hollywood Boulevard. It had a central Tower that climbed thirty stories into the clean desert air, and the Tower was surrounded by a quarter of a square mile of single-level structures. At the base, the building spread out for five hundred feet in every direction, and beyond that were the clusters of individual cabins interlaced by walks, small parks, an occasional pool, and a few little groves of trees "for privacy and the feeling of oneness with Nature," the brochure said. But the brochure didn't even do justice to the place. Nothing could have except the popping eyes of the thousand of tourists who saw

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

the Great Universal every month. And they were usually in no condition to sit down and talk calmly about it.

Around the entire collection of buildings rose a wall that fitted the architectural style of the place perfectly. A Hollywood writer out for a three-day bender had called it "Futuristic Mediaeval," since it seemed to be a set-designer's notion of Camelot combined with a Twenty-fifth Century city as imagined by Frank R. Paul. It had Egyptian designs on it, but no one knew exactly why. On the other hand, of course, there was no real reason why not.

That was not the only decoration. Emblazoned on the Tower, in huge letters of evershifting color, was a glowing sign larger than the eye could believe. The sign proclaimed through daylight and the darkest night: Great Universal Hotel. Malone had no doubts about it.

There was a running argument as to whether or not the Great Universal was actually on the Strip. Certainly the original extent of the Strip didn't include it. But the Strip itself had been spreading Westward at a slow but steady pace for two decades, and the only imaginable stopping-point was the California border.

Malone had taken a taxi from the airfield, and had supplied himself with silver dollars there. He gave the cabbie one of them and added another when the man's expression showed real pain. Still unhappy but looking a little less like a figure out of the Great Depression, the cabbie gunned his machine away, leaving Malone standing in the carport surrounded by suitcases and bags of all sizes and weights.

A robot redcap came gliding along. Inevitably, it was gilded, and looked absolutely brand new. Behind it, a chunky little man with bright eyes waved at Malone. "Reserved here?" he said.

"That's right," Malone said. "The name is Malone."

The redcap's escort shrugged. "I don't care if the name is Jack the Ripper," he said. "Just reservations, that's all I care."

Malone watched the luggage being stowed away, and followed after the redcap and its escort with mixed feelings. Las Vegas glittered like mad, but the two inhabitants he had met so far seemed a little dim. However, he told himself, better things might turn up.

Better things did, almost immediately. In the great lobby of the Tower, guests were lounging about in little groups. Many of the guests were dressed in tuxedos, others in sport shirts and slacks. Quite a number were wearing dresses, skirt-and-blouse combinations or evening gowns, and Malone paid most of his attention to these.

New York, Washington and even Chicago had nothing to match them, he thought dazedly. They were magnificent, and almost frightening in their absolute beauty. Malone however, was not easily daunted. He followed a snappily-dressed bellman to the registration desk while his robot purred gently after him. First things

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

first, he thought—but making friends with the other guests definitely came up number two. Or three, anyhow, he amended sadly.

He signed his own name to the register, but didn't add: "Federal Bureau of Investigation" after it. After all, he thought, he was there unofficially. And even though gambling was perfectly legal in Nevada, the thought of the FBI still made many of the club owners just the least little bit nervous. Instead, Malone gave a Chicago firm as his business address—one which the FBI used as a cover for just such purposes.

The clerk looked at him politely and blankly. "A room in the Tower, sir?" he said.

Malone shook his head. "Ground floor," he said. "But not too far from the Tower. I get airsick easily."

The clerk gave Malone a large laugh, which made him uncomfortable and a little angry. The joke hadn't been all that good, he thought. If he'd ordered a top-price room he could understand the hospitality, but the most expensive rooms were in the Tower, with the outside cabins running a close second. The other rooms dropped in price as they approached the periphery of the main building.

"A humorist, sir?" the clerk said.

"Not at all," Malone said pleasantly, wishing he'd signed with his full occupation and address. "I'm a gravedigger. Business has been very good this year."

The clerk, apparently undecided as to whether or not to offer congratulations, settled for consulting his registry and then stabbing at a button on a huge and complex board at his right. A key slid out of a slot and the clerk handed it to Malone with a rather strained smile. "10-Q," he said.

"You're very welcome," Malone said in his most unctuous tones. He took the key.

The clerk blinked. "The bellman will take you to your rooms, sir," he said in a good imitation of his original voice. "There are maps of the building at intervals along the halls, and if you find that you have become lost you have only to ask one of the hall guides to show you the proper directions."

"My, my," Malone said.

The clerk cleared his throat. "If you wish to use one of the cars," he went on in a slightly more unsteady voice, "simply insert your key in the slot beneath one of the wall maps, and a car will be at your service."

Malone shook his head and gave a deep sigh. "What," he said, "will they think of next?"

Satisfied with that for an exit line, he turned and found that the bellman had already taken his luggage from the robot redcap and put it aboard a small electric car. Malone got in beside him and the bellman started the vehicle down the hallway. It rolled along on soft, silent tires. It, too, was gilded. It didn't move very fast, Malone thought, but it certainly beat walking.

Each hallway which radiated out from the central section beneath the Tower was built like a small-edition

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

city street. The little cars scooted up and down the two center lanes while pedestrians, poor benighted souls, kept to the side walkways. Every so often Malone saw one, walking along the raised walkway and holding the rail along the outside that was meant to keep guests of every stage of drunkenness from falling into the road. At the intersections, small, Japanese-style bridges crossed over the roadway. On these, Malone saw uniformed men standing motionless, one to a bridge. They all looked identical, and each one had a small gold stripe sewn to the chest of the red uniform. Malone read the letters on the stripe as they passed the third man. It said: *Guide.*

"Now, you live in Q-wing, sir," the bellman was saying in a nasal, but rather pleasant voice as Malone looked away. "You're not far from the Tower Lobby, so you won't have a lot to remember. It's not like living along, say, the D-E Passageway out near 20 or 23."

"I'm sure it isn't," Malone said politely.

"No," the bellman said, "you got it simple. This here is Q-Yellow—see the yellow stripe on the wall?"

Malone looked. There was a yellow stripe on the wall. "I see it," he said.

"So all you got to do," the bellman said, "is follow Q-Yellow to the Tower Lobby." He acted as if he had demonstrated a Euclidean proposition flawlessly. "Got it?" he asked.

"Very simple," Malone said.

"O.K.," the bellman said. "Now, the gaming rooms—"

Malone listened with about a fifth of an ear while the bellman went on spinning out incredibly complex directions for getting around in the *quasi-city* that was the Great Universal. At one point he thought he caught the man saying that an elephant ramp took guests past the resplendent glass rest rooms to the roots of the roulette wheel, but that didn't sound even remotely plausible when he considered it. At last the bellman announced:

"Here we are, sir. Right to your door. A courtesy of the friendly Great Universal Hotel."

He pulled over to the side, pushed a button on the sidewalk, and the little car's body elevated itself on hydraulic pistons until it was even with the elevated sidewalk. The bellman pushed a stud on the walkway rail and a gate swung open. Malone stepped out and waited while luggage was unloaded. The courtesy of the Great Universal Hotel was not free, of course; Malone got rid of some more silver dollars. He fished in his pockets, found one lone crumpled ten-dollar bill and arranged it neatly and visibly in his right hand.

"I notice you've got a lot of guides in the halls," he said as the bellman eyed the ten-spot. "Do that many people get lost in here?"

"Well, not really, sir," the bellman said. "Not really. That's for the—what they call the protection of our guests. A courtesy."

"Protection?" Malone said. He had noticed, he recalled, odd bulges beneath the left armpits of the guides. "Protection from what?" he asked,

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

keeping a firm, loving grip on the bill, "There are a lot more guides than you'd expect, aren't there?"

The bellman shifted uneasily from foot to foot. "Well, sir," he said at last in an uneasy manner, "I guess it's because of the politics around here. I mean, it's sort of confused."

"Confused how?" Malone said, waving the bill ever so slightly.

The bellman appeared to be hypnotized by its green color. "It's the governor shooting himself," he said at last. "And the Legislature wants to impeach the Lieutenant-governor, and the City Council of Las Vegas is having trouble with the Mayor, and the County Sheriff is having a feud with the State Police, and— Sir, it's all sort of confused right now. But it isn't serious." He grinned hopefully.

Malone sighed and let go of the ten. It stayed fluttering in the air for perhaps a tenth of a second, and disappeared. "I'm sure it isn't," Malone said. "Just forget I asked you."

The bellman's hand went to his pocket and came out again empty. "Asked me, sir?" he said. "Asked me what?"

The next fifteen minuets were busy ones. Malone made himself quickly at home, keeping his eyes open for hidden TV cameras or other forms of bugging. Satisfied at last that he was entirely alone, he took a deep breath, closed his eyes and teleported himself to Yucca Flats.

This time, he didn't land in Dr. O'Connor's office. Instead, he opened his eyes in the hallway in the nearby building that housed the psychologists, psychiatrists and psychotherapists who were working with the tel-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

epaths Malone and the FBI had unearthed two years before.

Apparently, telepathy was turning out to be more a curse than a blessing. Of the seven known telepaths in the world, only Her Majesty retained anything like the degree of sanity necessary for communication. The psych men who were working with the other six had been trying to establish some kind of rapport, but their efforts so far had been as fruitless as a petrified tree.

Malone went down the hallway until he came to a door near the end. He looked at the sign painted on the opaqued glass for a second:

ALAN MARSHALL, M.D.
CHIEF OF STAFF
PSYCHOLOGY DEPARTMENT

With a slight sigh, he pushed open the door and went in.

Dr. Marshall was a tall, balding man with a light-brown brush mustache and a pleasant smile. He wore thick glasses but he didn't look at all scholarly; instead, he looked rather like Alec Guinness made up for a role as a Naval lieutenant. He rose as Malone entered, and stretched a hand across the desk. "Glad to see you, Sir Kenneth," he said. "Very glad."

Malone shook hands and raised his eyebrows. "*Sir* Kenneth?" he said.

Dr. Marshall shrugged slightly. "She prefers it," he said. "And since there's no telling whose mind she might look into—" He smiled. "After all," he finished, "why not?"

"Tell me, doctor," Malone said. "Don't you ever get uneasy about the fact that Her Majesty can look into your mind? I mean, it has disturbed some people."

"Not at all," Marshall said. "Not in the least. After all, Sir Kenneth, it's all a matter of adjustment. Simple adjustment and no more." He paused, then added: "Like sex."

"Sex?" Malone said in a voice he hoped was calm.

"Cultural mores," Marshall said. "That sort of thing. Nothing, really." He sat down. "Make yourself comfortable," he told Malone. "As a matter of fact, the delusion Her Majesty suffers from has its compensations for the psychiatrist. Where else could I be appointed Royal Psychiatrist, Advisor to the Crown, and Earl Marshal?"

Malone looked around, found a comfortable chair and dropped into it. "I suppose so," he said. "It must be sort of fun, in a way."

"Oh, it is," Marshall said. "Of course, it can get to be specifically troublesome; all cases can. I remember a girl who'd managed to get herself married to the wrong man—she was trying to escape her mother, or some such thing. And she'd moved into this apartment where her next-door neighbor, a nice woman really, had rather strange sexual tendencies. Well, what with those problems, and the husband himself—a rather ill-tempered brute, but a nice fellow basically—and her eventually meeting Mr. Right, which was inevitable—"

"I'm sure it was very troublesome," Malone put in.

"Extremely," Marshall said. "Worked out in the end, though. Ah

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

. . . most of them do seem to, when we're lucky. When things break right."

"And when they don't?" Malone said.

Marshall shook his head slowly and rubbed at his forehead with two fingers. "We do what we can," he said. "It's an infant science. I remember one rather unhappy case—started at a summer theatre, but the complications didn't stop there. As I recall, there were something like seven women and three men involved deeply before it began to straighten itself out. My patient was a young boy. Ah . . . he had actually precipitated the situation, or was convinced that he had. All basically nice people, by the way. All of them. But the kind of thing they managed to get mixed up in—"

"I'm sure it was interesting," Malone said. "But—"

"Oh, they're all interesting," Marshall said. "But for sheer complexity . . . well, this is an unusual sort of case, the one I'm thinking about now. I remember it began with a girl named Ned—"

"Dr. Marshall," Malone said desperately, "I'd like to hear about a girl named Ned. I really would. It doesn't even sound probable."

"Ah?" Dr. Marshall said. "I'd like to tell you—"

"Unfortunately," Malone went on doggedly, "there is some business I've got to talk over."

Dr. Marshall's disappointment was evident for less than a second. "Yes, Sir Kenneth?" he said.

Malone took a deep breath. "It's about Her Majesty's mental state," he said. "I understand that a lot of it is complicated, and I probably wouldn't understand it. But can you give me as much as you think I can digest?"

Marshall nodded slowly. "Ah . . . you must understand that psychiatrists differ," he said. "We appear to run in schools—like fish, which is neither here nor there. But what I tell you might not be in accord with a psychiatrist from another school, Sir Kenneth."

"O.K.," Malone said. "Shoot."

"An extremely interesting slang word, by the way," Marshall said. "'Shoot.' Superficially an invitation to violence. I wonder—" A glance from Malone was sufficient. "Getting back to the track, however," he went on, "I should begin by saying that Her Majesty appears to have suffered a shock of traumatic proportions early in life. That might be the telepathic faculty itself coming to the fore—or, rather, the realization that others did not share her faculty. That she was, in fact, in communication with a world which could never reach her on her own deepest and most important level." He paused. "Are you following me so far?" he asked.

"Gamely," Malone admitted. "In other words, when she couldn't communicate, she went into this traumatic shock."

"Not exactly," Marshall said. "We must understand what communication is. Basically, Sir Kenneth, we can understand it as a substitute for sexual activity. That is, in its deepest sense.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

It is this attack on the deepest levels of the psychic organism that results in the trauma; and has results of its own, by the way, which succeed in stabilizing the traumatic shock on several levels."

Malone blinked. "That last part began to get me a little," he said. "Can we go over it again, just the tune this time and leave out the harmony?"

Marshall smiled. "Certainly," he said. "Remember that Her Majesty has been locked up in institutions since early adolescence. Because of this—a direct result of the original psychosis—she has been deprived, not only of the communication which serves as a sublimation for sexual activity, but, in fact, any normal sexual activity. Her identification of herself with the Virgin Queen is far from accidental, Sir Kenneth."

The idea that conservation was sex was a new and somewhat frightening one to Malone, but he stuck to it grimly. "No sex," Malone said. "That's the basic trouble."

Marshall nodded. "It always is," he said. "In one form or another, Sir Kenneth; it is at the root of such problems at all times. But in Her Majesty's case the psychosis has become stabilized; she is the Virgin Queen, and therefore her failure to become part of the normal sexual activity of her group has a reason. It is accepted on that basis by her own psyche."

"I see," Malone said. "Or, anyhow, I think I do. But how about changes? Could she get worse or better? Could she start lying to people—for the fun of it, or for reasons of her own?"

"Changes in her psychic state don't seem very probable," Marshall said. "In theory, of course, anything is possible; but in fact, I have observed and worked with Her Majesty and no such change has occurred. You may take that as definite."

"And the lying?" Malone said.

Marshall frowned slightly. "I've just explained," he said, "that Her Majesty has been blocked in the direction of communication—that is, in the direction of one of her most important sexual sublimations. Such communication as she can have, therefore, is to be highly treasured by her; it provides the nearest thing to sex that she may have. As the Virgin Queen, she may still certainly *converse* in any way possible. She would not injure that valuable possession and right by falsifying it. It's quite impossible, Sir Kenneth. Quite impossible."

This did not make Malone feel any better. It removed one of the two possibilities—but it left him with no vacation, and the most complicated case he had ever dreamed of sitting squarely in his lap and making rude faces at him.

He had to solve the case—and he had nobody but himself to depend on.

"You're sure?" he said.

"Perfectly sure, Sir Kenneth," Marshall said.

Malone sighed. "Well, then," he said, "can I see Her Majesty?" He knew perfectly well that he didn't have to ask Marshall's permission—or anybody else's. But it seemed more polite, somehow.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"She's receiving Dr. Sheldon Lord in audience just at the moment," Marshall said. "I don't see why you shouldn't go on to the Throne Room, though. He's giving her some psychological tests, but they ought to be finished in a minute or two."

"Fine," Malone said. "How about court dress? Got anything here that might fit me?"

Marshall nodded. "We've got a pretty complete line of court costume now," he said. "I should say it was the most complete in existence—except possibly for the TV historical companies. Down the hall, three doors farther on, you'll find the dressing room."

Malone thanked Dr. Marshall and went out slowly. He didn't really mind the court dress or the Elizabethan etiquette Her Majesty liked to preserve; as a matter of fact, he was rather fond of it. There had been some complaints about expense when the Throne Room and the costume arrangement were first set up, but the FBI and the Government had finally decided that it was better and easier to humor Her Majesty.

Malone spent ten minutes dressing himself magnificently in hose and doublet, slash-sleeved, ermine-trimmed coat, lace collar, and plumed hat. By the time he presented himself at the door to the Throne Room he felt almost cheerful. It had been a long time since he had entered the world of Elizabethan knighthood over which Her Majesty held sway, and it always made him feel taller and more sure of himself. He bowed to a chunkily-built man of medium height in a stiffly brocaded jacket, carrying a small leather briefcase. The man had a whaler's beard of blond-red hair that looked slightly out of period, but the costume managed to overpower it. "Dr. Lord?" Malone said.

The bearded man peered at him. "Ah, Sir Kenneth," he said. "Yes, yes. Just been giving Her Majesty a few tests. Normal weekly check, you know."

"I know," Malone said. "Any change?"

"Change?" Lord said. "In Her Majesty? Sir Kenneth, you might as well expect the very rocks to change. Her Majesty remains Her Majesty—and will, in all probability, throughout the foreseeable future."

"The same as ever?" Malone asked hopefully.

"Exactly," Lord said. "But—if you do want background on the case—I'm flying back to New York tonight. Look me up there, if you have a chance. I'm afraid there's little information I can give you, but it's always a pleasure to talk with you."

"Thanks," Malone said dully.

"Barrow Street," Lord said with a cheery wave of the briefcase. "Number 69." He was gone. The Security Officer at the door, a young man in the uniform of a page, opened it and peered out at Malone. The FBI Agent nodded to him and the Security Officer announced in a firm, loud voice: "Sir Kenneth Malone, of Her Majesty's Own FBI!"

The Throne Room was magnificent.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

The whole place had been done in plastic and synthetic fibers to look like something out of the Sixteenth Century. It was as garish, and as perfect, as a Hollywood movie set—which wasn't surprising, since two stage designers had been hired away from color-TV spectaculars to set it up. At the far end of the room, past the rich hangings and the flaming chandeliers, was a great golden throne, and on it Her Majesty was seated.

Lady Barbara Wilson, Her Majesty's personal nurse, was sitting on a camp-chair arrangement nearby. She smiled slowly at Malone as he went by, and Malone returned the smile with a good deal of interest. He strode firmly down the long crimson carpet that stretched from the doorway to the throne. At the steps leading up toward the dais that held the Throne, his free hand went up and swept off the plumed hat. He sank to one knee.

"Your Majesty," he said gravely.

The queen looked down on him. "Rise, Sir Kenneth," she said in a tone of surprise. "We welcome your presence."

Malone got up off his knee and stood, his hat in his hand.

"What is your business with us?" Her Majesty asked.

Malone looked her full in the face for the first time. He realized that her expression was rather puzzled and worried. She looked even more confused than she had the last time he'd seen her.

He took a deep breath, wished for a cigar and plunged blindly ahead into the toils of court etiquette.

"Your Majesty," he said, "I know full well that you are aware of the thoughts that I have had concerning the case we have been working on. I beg Your Majesty's pardon for having doubted Your Majesty's Royal Word. Since my first doubts, of which I am sore ashamed, I have been informed by Our Majesty's Royal Psychiatrist that my doubts were ill-founded, and I wish to convey my deepest apologies. Now, having been fully convinced of the truth of Your Majesty's statements, I have a theory I would discuss with you, the particulars of which you can doubtless see in my mind."

He paused. Her Majesty was staring at him, her face pale.

"Sir Kenneth," she said in a strained voice, "we appreciate your attitude. However—" She paused for a moment, and then continued. "However, Sir Kenneth, it is our painful duty to inform you—"

She stopped again. And when she managed to speak, she had dropped all pretense of Court Etiquette.

"Sir Kenneth, I've been so worried! I was afraid you were dead!"

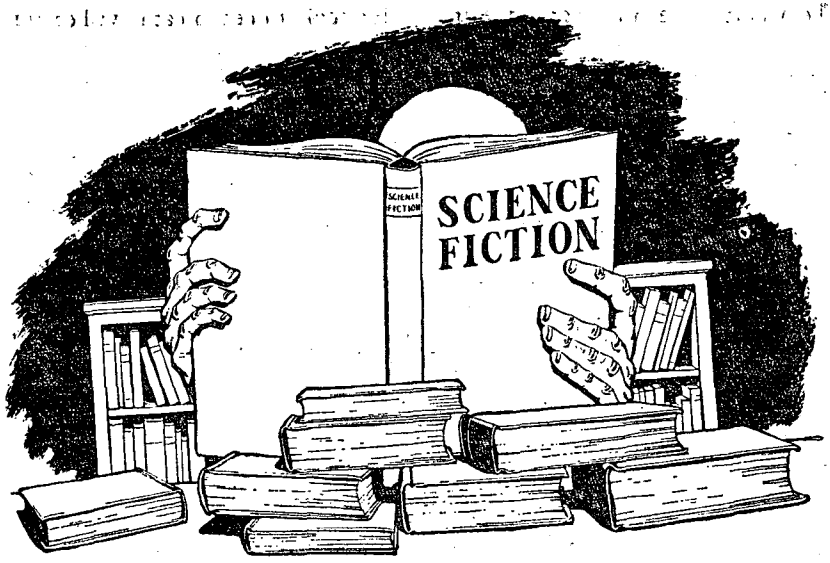
Malone blinked. "Dead?" he asked.

"For the past twenty-four hours," Her Majesty said in a frightened voice, "I've been unable to contact your mind. And right now, as you stand there, I can't read anything!

"It's as though you weren't thinking at all!"

TO BE CONTINUED

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED



THE REFERENCE LIBRARY BY P. SCHUYLER MILLER

PREMATURE FUNERAL

LAST year Earl Kemp, the Chicago fan who is one of the proprietors of Advent: Publisher, put out a harmless-appearing little questionnaire headed "Who Killed Science Fiction?" In it he asked five questions:

1. Do you feel that magazine science fiction is dead?

2. Do you feel that any single person, action, incident, et cetera is responsible for the present situation? If not, what is responsible?

3. What can we do to correct it?

4. Should we look to the original paperback as a point of salvation?

5. What additional remarks . . . would you like to contribute?

The questionnaire went to one hundred eight writers, editors, artists and fans and drew seventy replies, ranging from a classically short one from our own John W. Campbell—

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"Dead? We're going better than ever before!"—to several pages of intense social criticism. Earl published the meat of these replies in a one-hundred-seven-page booklet that went only to the contributors and the members of the Spectator Amateur Press Society last April, and is enlarging on it in a symposium at the Pittcon, a month ahead as this is written. You can't buy "Who Killed?" from anyone but the one hundred twenty-five people who originally got it, so I've hesitated to comment on it here. However, there are too many meaty ideas involved to let it go any further, and I doubt that waiting two more months, until after the Pittcon debate, will add anything.

What you read here will be superficial: it has to be. A complete report would involve quoting just about everything anybody said, then analyzing the replies and editorializing on them —something Earl resisted himself. What I pick and choose out of the mass of commentary will also be colored by my own ideas.

Let's begin with the question itself: "Who killed (magazine) science fiction?" Since the symposium appeared, there has been a widespread hooraw in fandom over John Campbell's "ostrich" reply, which was equally terse on the other four questions. This is a little odd, and makes me wonder how many of the hissers have read "Who Killed?" because most of the contributors said exactly the same thing, if at greater length: *"Magazine science fiction isn't dead"*—though it is apparently, in Willy Ley's words "just not feeling very well right now." This illness is what is really under discussion.

One issue can be established by counting: the *quantity* of magazine science fiction has fallen off since the all-time peak of 1953, when there were forty-five titles on the stands in the United States and England. As of August 1, 1960 we have six American magazines, three British ones, and one or possibly two weird-horror reprint titles which may or may not survive, but should be counted since the other total included *Weird Tales* and various fantasies. This is a fairly objective fact, whose reasons can be explored.

There is also a feeling abroad that the *quality* of today's science fiction has deteriorated since the "Good old days" of the mid-1940s. This is a purely subjective evaluation which has no "real" basis, since personal tastes as to what is "good" science fiction vary widely and sometimes irrationally.

This question of quality is also, I would say, a rejection by a primarily intellectual circle—an inner circle of the science fiction world who are concerned with what is happening to it as a philosophical and literary problem. And with this in mind, I'd like to direct your attention to an article by Leo Rosten, author of "The Education of H*Y*M*A*N K*A*P*L*A*N*," its sequel, and many more weighty books and articles. Mr. Rosten has lectured on political science at Yale, is a faculty associate of Columbia, and was a senior staff member

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

of the Rand Corporation, and will shortly be lecturing at the University of California at Berkeley. He is, you might say, an intellectual. He is also a realist.

Leo Rosten's article, "The Intellectual and Mass Media: Can They Ever Get Along Together?" appeared first in the Spring, 1960 issue of *Daedalus*, the journal of the American Academy of Arts and Sciences; it was reprinted in *Printers' Ink* for July 1st. There is nothing about science fiction in it, but there are several statements that I think help explain the answers in "Who Killed?"

First as to quantity: "Relatively few people in any society . . . have reasonably good taste or care deeply about ideas. . . Intellectuals seem unable to reconcile themselves to the fact that their hunger for more news, better plays, more serious debate, deeper involvement in ideas is not a hunger characteristic of many. They cannot believe that the subjects dear to their hearts bore or repel or overtax the capacities of their fellow citizens."

The contributors to "Who Killed?" came to grips with two pragmatic points that the intellectual wing of fandom, as Mr. Rosten points out for all magazines—and television, and the movies—does not accept: that magazine science fiction is primarily a medium for *entertainment* of its readers, although with many other values unique to itself; and that it is a *minor* branch of fiction, appealing to a minority of readers.

Rog Phillips enlarges on this point in the symposium, pointing out that the mass-circulation magazines such as the *Saturday Evening Post, Cosmopolitan, McCall's,* live off their advertising, whereas any minor magazine like *Analog,* or *Galaxy,* or *Amazing* must live off its sales. Now, magazine advertising—*in magazines that have not gone out of business entirely*—is booming, in spite of television. But public taste in magazines is changing: all-fiction magazines are going out; "men's" and scandal magazines are coming in to replace them as non-TV entertainment. So are hobby magazines of many kinds.

The next point comes from Robert Lowndes, editor of the probably deceased *Future* and *Science Fiction,* and I believe of the Avalon books. It is amplified and underlined in various degrees by Horace Gold of *Galaxy* and John Carnell of the British magazines.

Any magazine has two kinds of readers: the steady readers, and the new readers—and there are never enough steady readers to support the magazine. One common comment is that the most critical science fiction fans no longer read the magazines they criticize. Horace Gold says the turnover of new readers takes place in about five years; Sidney Coleman makes it two years. A friend of mine, Francis Beck, some years ago did some record keeping on active membership in hobby organizations, and came out with four years.

Whether *Analog* or any other science fiction magazine keeps its

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

dribble of regular readers doesn't really matter in keeping it solvent: it must have a continual influx of new readers to match the inevitable loss. And here the arguments as to quantity and quality do both come to focus, and comments in "Who Killed?" take on meaning.

As to quantity: the reading public is swinging away from reading fiction for entertainment, to television, to the paperback books, to participant sports such as bowling or specator sports like baseball and football. Cities like Pittsburgh build a multimillion dollar arena because it can be kept filled with sports events, but they starve the public library. Science fiction isn't the only sufferer: other pulp magazines went first—and how long is it since the balcony of your downtown movie was open?

Distribution is bad, and getting worse. Ted Carnell reports that this is a world-wide problem, though seemingly worse here than in Britain or Europe. You can't pick up new readers for science fiction if they can't pick up science fiction magazines on the newsstands—and get them there consistently, every issue.

Several contributors argue that bad science fiction, especially in the monster movies, TV, and during the "boom" days of the magazines, is giving the whole field a bad name. Old ladies made a department-store rental library, which I use, get rid of its adult science fiction because "that stuff isn't fit for children!"—for whom, of course, it was never intended. Andre Norton reports a reaction against the flood of poor juvenile science fiction reaching libraries. Would that it were all as good as hers, Robert Heinlein's, and some others!

Another quote from Mr. Rosten's article belongs here: "Intellectuals tend to judge the highbrow by its peaks and non-highbrow by its average. If we look at the peaks in both cases, how much do the mass media suffer by comparison?"

F. M. Busby, who will probably chair the 1961 World Science Convention in Seattle, seconds this with the opinion that a new reader, going over the output of the "great" days of 1946 and that of 1959, would consider more of the 1959 stories really good. Theodore Sturgeon once attacked it from the other side with what has become known as Sturgeon's Law: "Ninety per cent of *everything* is crud." The remaining ten per cent is what we call "good" and ten per cent of that—one story in a hundred—is "really good."

"Doc" Lowndes makes an important point along these lines: "Good competition helps a magazine, while bad competition injures it. A good competitor will leave a reader in a friendly frame of mind toward the field . . . bad competition drives him away; he won't look at any science fiction magazine again." This is where the unutterably bad movies hurt the good magazines, too. The *general level* of science fiction must be good to a *general* reader.

John Campbell, for all his satisfac-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

tion with the state of the art as represented in this magazine, would be the last to say that he gets enough good stories. "Who Killed?" goes into reasons for this. Basically, the reason is economical: the best writers can make much more in other fields—so they do. ASF is the best paying market in the field, so it gets the best—but it would delight in still better.

Here Isaac Asimov contributes the paradoxical point that the top science fiction editors have been too good for their own good. They set standards of writing quality much higher than the standards of the other pulps and most "slick" magazines, and they spotted their best writers and held them to those standards until they were too good for science fiction. John Campbell stands out here, but all the good editors have done it.

There are some pretty bitter attacks on "literary" science fiction in "Who Killed?" Poul Anderson, Marion Zimmer Bradley—who has about the best-balanced response in the whole symposium—Dr. E. E. Smith, James E. Gunn, Frank Kelley Freas are a few who have at the point. I belabored it myself in 1955 at the Cleveland convention, under a literarily obscure title. The point is simply that so long as we judge "good" science fiction by the presence of private jokes, verbal games, *avant garde* style, personal conceits, and incomprehensible stereotypes, *then good science fiction offers nothing to a new reader,* and because of its special content offers nothing to an intellectual from some other field.

To put it differently: if we select our standards of excellence to suit the "little" literary magazines, then we should be satisfied to have science fiction magazines with the negligible, often subsidized circulation of a "little" magazine.

I think it was Damon Knight who coined the phrase, "a high level of mediocrity." Looking at "Who Killed?" I find a pretty general agreement that editors would be selling more magazines—if anyone can sell more magazines—by concentrating on this rising mediocrity. This means fewer "far out" themes and ideas, except in stories by the most competent writers. It means more adventure, more color, more story-telling by gifted story-tellers. It means more Murray Leinster perhaps, and Poul Anderson, and Leigh Brackett, and Edmond Hamilton, and E. E. Smith, and Eric Frank Russell—whose very pertinent comments I've completely passed over here. It may mean looking for and finding another Edgar Rice Burroughs with that extra edge of quality that we've come to expect.

Above this high level of mediocrity, which starts attracting youngsters and oldsters who are fed up with television and paperback sex-and-sadism, the best writers will contribute those peaks that Leo Rosten described. There won't be any more of them than there ever were, but they'll stand out more. A plateau is a hellish place to hike: you can't see where you are or where you're going, or where you want to go, especially if it's all cluttered up with beautiful

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

shrubs and trees—of literary style and self-parody, for example—that distract your attention and start you wandering in circles. Add a few peaks, though, and you can see where you're going; you have a goal—and beyond the first peak another one. They are guides to the tenderfoot and landmarks to the experienced traveler. From them, or part-way up them, the dull plateau suddenly seems to have structure and sense.

And, lest I seem to have allowed the editors to go scott-free in a symposium in which they are actually under constant fire, with and without reason, let's make one last point: it is their job to build those peaks if they can't find one ready made, by training new writers if the old ones are no longer available, and to keep enough of the brush cleared off the high plateau so that the tourists can see the stars.

GET OUT OF MY SKY, selected by Leo Margulies. Crest Books, N.Y. No. S-362. 176 pp. 35¢

The title story in this set of three you may recognize as James Blish's demonstration that a straight psi story—right down to the Hieronymus machine—can be excellent science fiction as long as the author troubles to make it so. It was here in ASF in 1956-'57. It takes us to a double planet, a water world and a desert world, circling around their common center of mass in a far corner of the galaxy. The nameless water-world has bred a host of warring principalities, now in uneasy confederation because politicians are drumming up a holy war against the rival world in "their" sky. Aidregh, First Minister of the dominant nation, Thrennen, goes to the supposedly hostile Rathe and there learns a psionic trick to stave off disaster. It's handsomely done.

So is "Sister Planet," which Poul Anderson wrote for the dying *Satellite.* The planet in question is Venus, where scientists and traders have made contact with a whalelike race, as delightful and believable a lot of extraterrestrials as you'd want to meet. Then the question comes into the open: shall these "people" with their humor, their strange biological industries, their art, be destroyed to make mud flats which men can some day colonize? Poul Anderson makes the hero's decision almost inevitable.

Third and least is Thomas Scortia's "Alien Night," an adventurous yarn from *Science Fiction Adventures.* This is a story with almost as many inner whirligigs as a van Vogt yarn, handled more plausibly and more economically, in the length of what used to be called a novelette. It gives us a static utopia of the future, stirred up by inner dissension and outer attack that somehow blend.

Any one of the three stories was probably worth the price of the issue in which it was first printed. So here are all three for the same price.

DARK DECEMBER, by Alfred Coppel. Gold Medal Books, Greenwich, Conn. No. S-989. 208 pp. 35¢

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Of aftermath-of-the-nuclear-war books there is no foreseeable end, but *this is an unusually well done one.* Not for surprise gimmicks . . . not for multi-headed mutants with built-in levitation . . . not for outre post-war societies . . . but just because it tells a simple story convincingly and well. To quote the cover blurb—which I normally dislike to do—"this is the way it could be."

Major Kenneth Gavin, a fighter pilot in Korea, has spent World War III underground in an Alaskan missile pad, clobbering Russian cities and bases according to the book while they as diligently clobbered ours. The war ended, he is given terminal leave to try to find traces of his family in California—a part of the world from which there has been no peep of information since early in the war. It is known that bacterial warfare was used there, that those who survived death from radiation have been decimated by anthrax, and that the whole region has been sealed off to prevent contamination of uninfected areas.

On his way home, Gavin encounters a sadistic martinet of a career officer, Major J. E. B. Collingwood, who has the tightest outfit in the Army and who delights in burning down refugees on the theory that they are all bandits. Gavin gets Collingwood his come-uppance early in the book, and is haunted by him thereafter. With the escaped Collingwood on his trail, he makes his way from southern Oregon to San Francisco. His trek is pointed up by stock situations . . . the rapists from whom he rescues a young teacher's wife . . . the religious maniac . . . the power-grabbers . . . *the quietly wary* village folk . . . the teen-agers run wild. The difference is that the author makes his people and his situations real, no matter how familiar they may be.

Needless to say, even an atomic barrage hasn't made it snow in California, so the cover painting is nonsense, and so is the cover blurb: it is one of the book's virtues that Gavin does meet good people, and plenty of them, along with the bad.

As for the standard complaint that we've had enough of these books, I don't think we have—not as long as the real thing is just over the horizon, at the end of a Soviet officer's index finger. If casual readers can have the consequences of nuclear war dinned into them consistently enough, and effectively enough, it may keep the sword-wavers out of positions of power. Science fiction has done its share for long enough; it's good to see a writer outside the field doing it as well as we can, and probably reaching more readers.

CORPUS EARTHLING, by Louis Charbonneau. Zenith Books, Rockville Centre, N.Y. No. ZB-40. 160 pp. 35¢

Louis Charbonneau is an extremely uneven writer from where I sit. I've liked most of his mysteries and disliked most of his science fiction. This hybrid of the two falls into the "Oh hum!" class, and isn't helped by the

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

fact that the cover artist has given away the big "secret" that the hero doesn't discover until page 144. There's only one brunette in the cast of tempters.

Some time in the future, UCLA instructor Paul Cameron begins to "overhear" telepathically the conversations of two Martians who are inhabiting human bodies, and who intend to open a bridgehead for the rest of their kind. They spot him as a listener and set out to eliminate him, by nudging him telepathically into a fatal accident or suicide, and by simple murder. Cameron, on his part, sets out to eliminate the possible hosts for his alien enemies and find out who the two are. Since three of the suspects are beautiful coeds—one a part-time waitress who is promptly murdered, bringing the police down on him—the good Prof is able to do a good share of his interviewing in bed, or on the way to it.

Finally, even he sees the obvious—though it's true he didn't have the cover painting to help him—and the Martians lose out. Cameron has a couple of souvenirs and a blonde of his own, and there will be more Martians along with the next ship from Mars. What do you bet Hollywood buys this one?

INVADERS FROM RIGEL, by Fletcher Pratt. Avalon Books, New York. 1960. 224 pp. $2.95

This book pretty well demolishes the legend of the good old days when every issue of every magazine was pure gold. If a writer of the ability of Fletcher Pratt turned out this parody of science fiction, and an editor of the perspicacity of Hugo Gernsback featured it in the Winter, 1932 *Wonder Stories Quarterly*—as "Onslaught from Rigel"—it was supposed to be pretty hot stuff. It was even reprinted, and perhaps updated a bit with references to radar and such, in the 1950 *Wonder Stories Annual*. I can't imagine anyone's publishing it today.

The thing is magic, not sciencce fiction. Brainy elephants from Rigel come to Earth in a starship disguised as a comet. Its emanations, or perhaps a ray of some kind, envelop the planet turning Australians blue but converting men and animals on the American side into metal—either quite dead lumps or living, oil guzzling, never-sleeping robots. Naturally, our heroes and heroines are of the latter sort.

Waking up in the remains of New York, some months after the onslaught, one group of these iron men—including a rusty scrubwoman—set up a dictatorship, have a small mutiny, and are promptly at war with a flock of four-winged, bomb-dropping, alien birds. Eventually an Aussie exploring party gets them out of that one, but not before several of their number have been carried off to a city under the Catskills, to toil for the Lassans. One escapes with a head full of Lassan secrets, and there is presently a fine, old-fashioned battle between the aliens and their irresistible weapons and our Good Guys

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

with their instantly-invented-and-manufactured counterweapons. Eventually the invaders' super-force gets away, and its emanations change all the metal men back into meat, so that the boys can get together with their girls without its sounding like a pair of tanks meeting head-on.

I can't help thinkng that Fletcher Pratt must have written this as a self-parody . . . and sold it!

THE FANTASTIC UNIVERSE OMNIBUS, edited by Hans Stefan Santesson. Prentice-Hall, Inc.. Englewood Cliffs, N.J. 1960. 270 pp. $3.95

It is too bad that this omnibus of short stories and novelettes from *Fantastic Universe* appears just in time to serve as a tombstone for that exasperating magazine. Published a little earlier, it might have helped to keep one more magazine among us and to bolster up the importance of the science-fiction field with a public concerned primarily with success. But that's another subject entirely . . .

In a nice introduction, Lester del Rey—who should also have been represented with a story, any story—characterizes the magazine as one of "science fantasy" and expands his theme well. The impossible side of science—the possible elements of the impossible—is the paradoxical territory with which many of these stories, though not all, are dealing. They also tend to be "blackout" stories—to borrow a burlesque and vaudeville term—in which the plot and/or action builds up to a kicker in the last few lines. As might be expected of such stories, many are far shorter than most conventional science fiction.

There are nineteen stories in the omnibus—it is *not* tagged "the best" by either editor or publisher—plus a final anonymus item not listed in the contents or acknowledgments. The latter show that they all date between 1956 and 19558, leaving room for a second collection even if the parent magazine is no more with us.

Isaac Asimov opens the book with "First Law," one of his robotics yarns in which a robot finds a law that must be given priority to the First Law of Robotics. In "She Only Goes Out at Night . . ." William Tenn introduces us to a country doctor whose son falls in love with a vampire. "The Pacifist," by Arthur C. Clarke, is a "White Hart" story in which Harry Purvis recalls a most exasperating super-computer. And we're still only twenty-three pages into the book.

Avram Davidson comes next with "The Bounty Hunter," a lovely little tale about another planet where the descendants of colonists have kept alive certain archaisms that please their nonconformists. Dorothy Salisbury Davis, in "The Muted Horn," has an equally fine fantasy about the future of an ingrown New England town. These two would be tops anywhere.

Robert Bloch, as might be expected, does the unexpected with predictable finesse in "A Way of Life." this is a broad comedy of a future in

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

which Science Fiction Fandom has restored an ordered society after an atomic holocaust. John Henderson, candidate for President of the United States on the FAPA ticket, looks back to the grand old days of Twentieth Century fandom, and we grin as we look over his shoulder. Then, suddenly, the mood changes when Henderson discovers real relics of fandom.

Harlan Ellison, predictably unpredictable, is quite unlike his usual violent self in "In Lonely Lands," a gentle glimpse of a kind of symbiosis of man and alien on a far world. There should have been more like this in his recent short-story collection for Ace—if he's written 'em.

Back to the English for comedy: "Fall of Knight" by A. Bertram Chandler, builds gag on gag, then draws the curtain on the last horrendous pun. Then to more sentiment: in Myrle Benedict's "Sit By the Fire" an other-world girl takes refuge with an old hill-billy but cannot deny her innate humanity. Then to dead-pan slapstick in L. Sprague de Camp's "A Thing of Custom," as the doggedly conscientious residents of a Philadelphia suburb—located somewhat west of Harrisburg—take a swarm of aliens into their homes for a week end.

The stories are getting longer now, and in "Exile from Space" Judith Merril takes us with a girl who has been dropped on Earth by "them" and given a chance to decide whether her blood or her upbringing will rule her. An interpolation near the end is an intrusion, not at all like the author's usual sure judgment. She has written too well to need it.

"Mex," by Larry M. Harris, is fantasy again; a minor-league version of one of Ray Bradbury's—or Charles Addams'—weird families. "The Amazing Mrs. Mimm," by David C. Knight, on the other hand, is a delightfully human little story, soap-opera at heart but never out of taste, about the old lady who meddles quietly in the past as a baby-sitter out of the future. And Henry Slesar, in "My Father, the Cat," gives us another outrageously fine bit of fantasy, while William Campbell Gault's "Title Fight" gets at the guts of relations between humans and robots in a story of a fight between a human and a robot contender, which is to be the signal for an uprising of machine over man. Both of these last writers are venturers from other fields.

"The Golden Pyramid," by Sam Moskowitz, comes next; a trifle, with the inevitable blackout ending. Felix Boyd's "The Robot Who Wanted to Know" is another trivial one, in which Gault's human robot falls in love. Robert Silverberg, on the other hand, has pictured a post-atomic-war world as grim and hopeless as anything we have had in "Road to Nightfall," as the remaining people of New York sink to cannibalism, hemmed in by radioactive walls. You can hardly like the story, but it's one of the memorable ones in the book.

With "The Velvet Glove," by Harry Harrison, we are back at the humanism of humanoid robots: this time with Jon Venex, who is too spe-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

cialized to find work in a world which has permitted him to buy his freedom, then ignored him. He could be any out-of-work veteran drawn into melodrama. And the unlisted tailpiece—is Vithaldis H. O'Quinn, the author of "The Day Will Come . . ." or of the poem quoted in it?—gives us a glimpse of life on Venus.

Davidson, Davis, Bloch, Ellison, Knight, Slesar, Gault and Silverberg stand out in a collection that also stands out for a variety that seemed to have gone out of science fiction, but suffers from gag endings.

KISS KISS, by Roald Dahl. Alfred A. Knopf, New York. 1960. 319 pp. $3.95

Only two of the eleven short stories in this collection by a rather prominent main-stream writer can be considered science fiction, and they are closer to what Lester del Rey calls "science fantasy" in his introduction to "The Fantastic Universe Omnibus."

"William and Mary," the first of the two SF stories, is a deftly handled variant on the preserved brain theme. The William of the story, a homemartinet in life, becomes a helpless brain with one effective eye in the laboratory of an acquaintance. Then his widow discovers that she is not exactly one . . .

"ROYAL Jelly" has more fantasy in it. A bee-keeper's puny baby will not eat until he feeds her on royal jelly from his hives, and then her health becomes monstrous good, though never—in the span of the story—quite as good as that of the victims of H. G. Wells' "Food of the Gods."

I suppose you just might fit "Pig" into an outre future society, though it purports to be the story of what happened to a sheltered youth of our own time, when he ventured into the world. But "Edward the Conqueror," with its cat who appears to be a reincarnation of Liszt, is beautifully done fantasy, and "George Porgy" is a descent into the mental breakdown of a man afraid of women, crawling with psychoanalytical symbolism.

You'll have gathered that none of these stories are exactly pleasant in tone. This is also true of the "straight" stories, which range from the macabre marital malice of "The Way Up to Heaven" to the cruel humor of "Parsons' Pleasure," in which a swindling antique dealer comes a bitter cropper. The only almost pure slapstick comedy is "The Champion of the World," in which two pheasant poachers see their scheme go madly wrong. For the rest, "Genesis and Catastrophe" is a deceptively mild vignette with an ironic twist, "The Landlady" might have been done by Lord Dunsany in his early Jorkens years, and "Mrs. Bixby and the Colonel's Coat" is a blown-up, sardonic burlesque joke.

Pleasant they're not, but they are the kind of stories that continue through the years in anthologies, like those of John Collier, or Dunsany, or many another skillful writer with a wry twist to his imagination.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

BRASS TACKS

Dear John:

In the August Issue, I particularly appreciated "A Taste of Poison," by Anvil. A bit of sympathy for a hard-headed businessman is a much needed touch in science fiction. In the light of your own philosophy, an intuitive grasp of a situation plus a certain instinct for survival are, if not admirable, at least valuable characteristics.

By the way—many years ago when I went to college I had to learn the Greek alphabet, both upper and lower case letters. Now I don't know whether "gamma" is or is not the symbol for a neutrino, but what are upsilon rays? See Alastair Cameron's article, same issue.—Paul A. Smith, 1921 Greenfield Avenue, North Chicago, Illinois.

Upsilon rays are the transformation product of gamma rays that have been altered in passing through the typesetting process.

Dear John:

I have for the past few months been trying to figure out what you are trying to prove in your editorials. You make all kinds of positive assertions that are true only because you misdefine words to make them so. Although you keep moving, you never

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

really arrive anywhere because your thoughts are not tied together, and one idea does not follow from the preceding one.

With reference to your August editorial, you should beware of similes for you usually wind up disproving the thing you are not talking about. Point: So sluts do not discriminate. Does this have anything to do with the fact that discrimination against Negroes, Jews, or any other group often hurts these people by not allowing them to live an enjoyable and fruitful life, and also hurts society because it is not then able to utilize their talents. (How many Negro Einstein's and Fermi's have been lost to American society?)

It seems odd that the editor of a magazine would not have learned that there are many shades of meaning to many words in the English language. Sure, this sometimes leads to ambiguity. But don't play the illiterate yokel who knows only one shade of meaning and gets all confused as a result. As for your definition of prejudice—same issue—"in fundamental analysis," it gets so fundamental that it loses some important overtones necessary to proper use of the word. I would like to present another definition * that doesn't have this fault, and exposes the irrelevant nature of your editorial: "prejudice. Refers to attitudes that tend to place the objects of the attitudes at an advantage or disadvantage without respect to all the available data."

* David Krech and Richard S. Crutchfield, "Elements of Psychology, pg. 693, Knopf, New York, 1958.

You say that, "there never was, is not, and never will be, anywhere or anywhen in all space-time, any culture of intelligent entities that was not founded on prejudice, discrimination, and hurt." It is certainly true that all present cultures on earth base their mores, laws, ideals, et cetera, et cetera, et cetera, on prejudice. But, why do you feel that this must always and everywhere be the case? Only because using your meaningless definition, prejudice as part of Campbell's Law becomes infinite in space and time and dooms cultures forever to prejudice.

Using the definition herein presented, the eternal existence of prejudice would be possible only if intelligence is so constituted that it is incapable of accepting all the available data. I cannot accept such a gloomy picture. I prefer to believe in the perfectibility of intelligence, that it is self-perfecting and can rid itself of prejudice which depends upon ignorance.

You say that, "Discrimination based on prejudice is the function of the courts." You must conclude the foregoing because of your definition and thus banish courts forever to the area of ignorance. I would be forced to agree that present courts are based on prejudice because our tradition of law insures that certain vitally important data will be excluded. But, I would ask, must this always be the case? Is discrimination based on prejudice a necessary function of the court as you state, or is it not more likely an area where knowledge has not yet

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

successfully overcome ignorance? Would a culture be meaningless if its courts were not based on ignorance?

Granted every intelligent entity is forever and irrevocably doomed to ignorance. But must he also be doomed to forsake knowledge; i.e., to be prejudiced? Will man never be able to use knowledge to alter cultures in a desirable way rather than embracing prejudice—ignorance—and therefore insuring that cultures will always be broken, destroyed, and eventually replaced by better ones?

As for your further discussion about "need" and "want," they seem to better be reduced to Socrates' discussion about knowledge and ignorance in *Protagoras* and *Euthydemus*. In the latter, he arrives at the proposition, "that wisdom is the only good, and ignorance the only evil." I think, you would not protest changing wisdom to read knowledge. With this change, the foregoing proposition becomes a weapon that promises to allow man to conquer his ills and not worry about the Big Help.—Arthur M. Jackson, Lebanon, Oregon.

Re Negro Einstein's: Probably about the same number of Negro Einstein's and Fermi's have been lost to American society as Jewish and Italian Einstein's and Fermi's, my friend. And probably an equivalent number of Jew and foreigner international figures of Ralph Bunche stature have been lost, too.

So who has an easy time climbing out of the general mob level? Would-be Einstein's and Fermi's and Bunche's get clobbered not because they're Jew or foreigner or Negro, but because they seek to rise above the mob.

". . .Without respect to all the data" always was, is, and always will be true; men, not being omniscient, necessarily act, always, on precisely what you define as prejudice. So we are fundamentally in agreement.

Popular prejudices always feel like facts-of-nature; currently the most dangerous prejudice is the one that holds "Eggheads are to be distrusted and suppressed." That, rather than racialism, stops most of the could-be geniuses of today. But who has the courage to cry out against that mass-popular prejudice?

My dear Mr. Campbell:

Some weeks ago, I suggested to you that you might be interested in a series of experiments performed by the late Charles Brush in the 1920's regarding apparent anomalies in the value of "g". I apologize for the delay in sending you the references.

Charles F. Brush, who died in 1929, was a physicist of considerable professional stature; he was for some time associated with the National Bureau of Standards; and I believe it was during this time that he performed the experiments in question. He was the author of a not-very-well-known—and apparently not-very-well-received—theory which he called the "Kinetic Theory of Gravi-

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

tation," described in *Science,* March 10, 1911 and in *Nature,* March 23, 1911. His later experiments concerning retarded free-fall are described in the *Journal of the Franklin Institute,* August, 1928, and in the *Proceedings of the American Philosophical Society,* Vol. LXII, No. 3, 1923, and Vol. LXIII, No. 1, 1924.

In a series of related experiments around the same time, he also claimed to have demonstrated a spontaneous generation of heat of an unspecified nature or mechanism in various silicates, notably some of those in which he demonstrated retarded free-fall—heat of too large a quantity to be induced by radioactivity—although it would be interesting to check his conclusions against today's updated data. These were reported in the *Proceedings of the American Philosophical Society,* Vol. 65, April 23, 1926. His findings in this regard were later confirmed by E. A. Harrington of the National Bureau of Standards, and were also reported in the *Proceedings of the American Philosophical Society* in 1933, in an article entitled "Further Experimentation on the Constant Generation of Heat in Certain Silicates."

It was also claimed that a pendulum with a bismuth bob exhibited a marked increase in frequency over an identical one with a zinc bob—one beat in 17.432, as I recall, which, to say the least, is rather a large discrepancy. In any case this was reported by Brush in the *Journal of the American Physical Society,* Vol. XVIII, No. 2, p. 125.

This may be somewhat nonchronological, but I've just turned up a reference that Brush first described findings in retarded free-fall in the *Proceedings of the American Philosophical Society,* in 1921, 1922, and 1923, and in the *Physical Review* in 1921. In all fairness, the same source also cites several references which claim to disprove Brush's findings. These are papers by H. H. Potter and P. Phillips in the *Proceedings of the Royal Society of London* in 1922, and again by Potter and Phillips in the *Physical Review* in 1922; also a paper by Wilson, Briggs, and Owen in the *Physical Review,* 1922.

All of the experiments reported above seem to have been fairly well controlled and carefully executed; whatever the conclusions drawn, the results are most interesting—Richard McKennor.

Anyone have data as to the conclusion of this—or did it just fade away like the traditional old soldier?

Dear Mr. Campbell:

On page 122 of Leslie Fiedler's recently published critique, "Love and Death in the American Novel," Criterion Books: New York, 1960, $8.50, we wend our weary way through the following: "The wildest imaginings of ancient sorcery become the staples of science fiction (defended by reminding cavilers that the atomic bomb itself was only yesterday a mere fantasy of neo-gothic

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

writers); *dybbuk* and *golem,* demons who possess and artificial men who remember and make choices, finally contest with their creators the rule of this world; such legendary creatures are called however, 'invaders from outer space' and 'android robots' (sic!), so that no reader need feel his sense of fact offended by what thrills his nerves."

Before I begin my argument against the lack of meaning within science fiction implied by the above, I want to add that I consider Mr. Fiedler one of the outstanding literary critics of our time, and that I found his long (591 pages) work to be one of the most carefully wrought literary critiques I have ever had the pleasure of reading. Mr. Fiedler, out of necessity since a preponderance of American novels falls into this category, concerns himself largely with an analysis of the gothic in American fiction. My reading of science fiction has complemented my reading of American gothic and has given me new reasons for reading each. Having read Mr. Fiedler's work with enjoyment, I would like to say: Go thou and do likewise.

However, why do we find *careful* criticism of science fiction only in articles and books written by critics from within the genre? Outside the field, we note Mr. Fiedler at best dismissing science fiction rather nastily in a couple of paragraphs and at worst we are subjected to the ridiculous pseudo-criticism of an "H.S." in the *Saturday Review,* neatly disposed of by Robert Heinlein on pages 40 and 41 of "The Science Fiction Novel," Advent: Publishers: Chicago, 1959, $3.50.

Having graduated from college with some distinction as an English major and having since kept up with mainstream fiction and criticism as much as my time permits, perhaps I take too personally the lack of interest in science fiction shown by critics outside the genre.

This lack of attention is evidently the result of one of the following: either that critics have carefully read large amounts of science fiction and have decided that it has no, or only nominal, literary value; or that mainstream critics are simply not very familiar with science fiction. I am convinced that the latter is correct. If I am right, then at least some part of science fiction *may* be serious literature.

Well, what is serious literature? The following definition—which covers everything from poetry-read-to-jazz to speculative essays of the Baconian type—is simply: an art form using the symbolic benefits and limitations of language, which conveys important insights about human beings within its structure so that these insights may be made meaningful to the reader or listener. I believe that this is always the intent of serious literature. That some poems, stories, novels, plays, and essays do not succeed is to rule them out as *serious* literature; they are instead hack potboilers or else miscarriages of honest attempts to shed light upon the human drama.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Do any stories—even does any single story—within the field of science fiction succeed in conveying meaningful insights to the reader? If my definition is correct and if the answer is "yes" then some part of science fiction must be serious literature and thus worthy of criticism.

Science fiction has had its share of both potboilers and miscarriages, but it also has produced stories shedding light on the soul of Man in as varying degrees as Eric Frank Russell's "Plus X"—with two or three insights of permanent value—and Arthur C. Clarke's "Childhood's End," which contains a great amount of meaning.

I consider neither of the above, however, to be literature worthy of being placed on the shelves beside, let us say, Stendhal's "The Red and the Black." For me, that apex is reserved for two works I believe to be the best that science fiction writers have yet produced: Heinlein's novelette "Universe" and Sturgeon's novel "More Than Human." I find fresh revelations in each every time I reread either, which is frequently. I assume that every science fiction fan who has more than superficial acquaintance with the field has read both.

Heinlein has, in the most astonishingly succinct form I have yet read, succeeded in symbolizing in the person and fictional life of Hugh Hoyland the entire history of every intelligent human being's struggle from ignorance into knowledge and from childhood to adulthood. It is even more remarkable that he has used that very same Hugh Hoyland to symbolize the entire history of mankind in its climb from the caves to the skyscrapers. Heinlein is telling us that Man imprisons himself within *his own* superstitions, and that these superstitions can be shed only through questioning of the basic premises of our present philosophies. He tells us that our universe is puzzling to us, but *that it can be less so.* If our philosophies are burdened with metaphysical distortions of reality, as in the priest-Scientists' interpretation of the Trip—an actual journey from Earth to the nearest star—as an allegorical journey from birth to death, then our interpretation of the universe is incorrect. If we reject the metaphysics and cannot fill the void left by its rejection with a truer story of things-as-they-are, then we fall into nihilism, as do the young Scientists who completely reject the whole idea of the Trip even as an allegory. What, then, can give us a true picture of the universe? Only patient observation, theorizing, and occasional flashes of intuition which reduce the complex results of observation and theory into general laws. Heinlein has described the birth of the scientific method: that generalizations may be made safely only after significant details are known. That the birth of reason is an emotional as well as an intellectual adjustment, both in the individual and society, is demonstrated in Hoyland's trial for heresy, which not only obviously parallels Galileo's but which symbolizes the private struggle for truth within

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

each of us. In "Universe" Heinlein is telling us, on many levels of meaning, what makes a man *human.*

Sturgeon's novel is equally complex. His Homo gestalt individual is a composite of many human individuals, who in turn are as necessary for the complete fulfillment of Homo gestalt's functions as are eyes or a brain for Homo sapiens'. The ramifications of this concept alone are many, thus it is staggering to realize that Sturgeon's most meaningful insights rest on a deeper level within the novel: that of the relation of man to man within society. The fundamental theme is that of the search of the human being for companionship and his utter despair, debasement, alienation, *incompleteness,* when companionship cannot be realized. Sturgeon contends that the human situation is often one of despairing loneliness because of the lack of comprehension — empathy — among member humans. Thus is Lone, the Idiot, prior to his becoming a "limb" of Homo gestalt, depicted as the ultimate solitary man. Only by empathy, the sharing without holding back and without embarrassment of our most precious dreams, desires, and accomplishments, can every man hope to fulfill his destiny, which is to be an aware individual within a sane society.

Critics prefer a story or novel which may be interpreted on many levels and which is ripe with meaningful symbolism. I think it is only neglect of the genre which has led critics to avoid facing the many levels of meaning and creatively symbolic insights inherent within the Heinlein story and Sturgeon novel discussed above. My analyses were very superficial, neglecting entirely Freudian literary analysis, which is able to shed insight into the darker meanings in a work, and mythographic analysis for which a study of "Universe" alone could produce pages. A professional critic could devastate the literary world with a lengthy analysis of either of the above works.

More important perhaps, the works cited above may be my own favorites, but there are others fairly crying for recognition. Is science fiction serious literature? I say enough of it is to be worth more than one page in a 591-page critique!

I am shocked to see mainstream critics indulging in a fit of superlatives in their treatment of a story such as Flannery O'Connor's "A Good Man is Hard to Find," a sadistic vignette which is not only the *worst* story I have ever read but is unique in being the only one in which the characters have not even a symbolic connection with real human beings.

Some outstanding mainstream literature is being written today, particularly in the field of poetry, much of which is of extremely high quality. Before we decide that the Age of Fiction is dead, however, I submit that novels such as Robert Graves' "They Hanged my Saintly Billy" or Henry Treece's "The Dark Island" have enough of the combined aura-of-reality and stuff-of-dreams to be treasured as fine literature a hundred

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

years hence. Both are, however, historical novels. There have been some in this century who write well of the here-and-now: Edmund Wilson, C. P. Snow, the late D. H. Lawrence, but there are not enough to satisfy my craving for the printed page.

Until mainstream fiction swings away from its middlebrow emphasis on conform-or-else potboilers (J. D. Salinger, Herman Wouk, et al) and its highbrow emphasis on fear of life, miscarriages of serious intent (Carson McCullers, Faulkner ad nauseam) I shall continue to read science fiction. Science fiction appears to be the only genre within fiction where one consistently finds stories by people and of people who use the one faculty which separates us from the beasts of the field: intelligence. If this be blasphemy from a student of literature, then so be it!—LTJG Sandra J. Fulton, USNR.

Science-fiction doesn't fit into the mainstream of literature, and, so long as it is science-fiction, won't. The fundamental difference is this: the mainstream serious novel tries to show the effect of experiences on the individual who is the central character. Science-fiction tries to explore the effect of experiences on the group-entity—culture, race, or confederation of races—which is, in fact, the central character. Note that this must be presented through individual eyes—but while a man may be the viewpoint character, Man is the central character.

Dear Sir:

Has van Dongen been cribbing from Rogers?

The June issue of the British Edition of A.S.F. has a cover by van Dongen showing a young man, head and shoulders, looking towards his right, with a rocket going up in the background. This subject rang a bell. I found its twin in the February 1950 issue of the American Edition of A.S.F.—which I get, along with the British edition, between dollar crises. The February 1950 cover, by Rogers, shows a young man, head and shoulders, looking towards his right, with a launching cradle from which a rocket has just left in the background. Rogers' man, for the L. Ron Hubbard story "To The Stars," is in uniform, while van Dongen's man is apparently naked, but otherwise there is a remarkable similarity, right down to the angle of view, the cast of features, and arrangement of the hair.

Since this is the first time in twenty years of A.S.F. reading that I have written to you, I will also take the opportunity of congratulating you on the consistently high standard of the magazine, and saying that I fully agree with you over the dropping of "Astounding" from the title; it smacks too much of B.E.Ms.—M. L. Jefferson, 20 Hawthorn Walk, Eastfield, Scarborough, Yorkshire, England.

With one hundred and twenty or so covers in between, I guess I missed the similarity. And I know van Dongen did.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Continued from page 6

story in this magazine was the basic rule of the scientific method fulfilled —observe, measure, and experiment; these, not theory, determine fact.

I repeat; it is essentially unimportant whether or not Dean's device works. It is important that it was not investigated.

During WWII, on a number of occasions, newspapermen and others tested the "security" systems of various plants with "security guard" arrangements. One, I recall, got into an aircraft plant using a phony card to which he had attached a clear, sharp photograph of Adolph Hitler, where the standard identification picture should have been. It is not necessary to prove that the newspaperman who did that was really Hitler to show that the security guard system was incompetent.

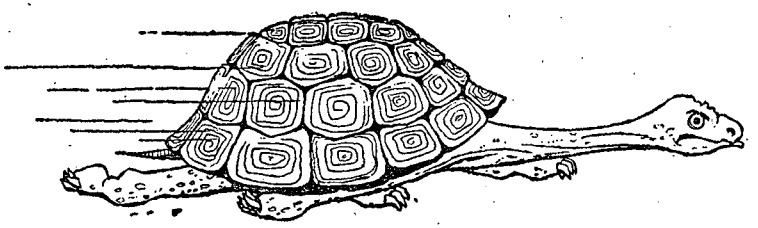
On another occasion, two newsmen dressed up in full Nazi SS uniforms, and walked around the streets of a major United States city to see how long they could go before they were stopped. After some three hours, their feet were tired, so they went home. No one—neither civilian, military, or police—had questioned the right of two Nazi SS troopers, in full uniform, to walk around the city.

It is entirely unimportant that they were not, in fact, Nazi SS troopers; they were phonies—but they adequately demonstrated the absolute incompetence of the security system of the city.

I hold that it is, equally, quite unimportant whether or not Dean's drive is an actual space drive.

The absolute incompetence of our method of detecting important, breakthrough discoveries is thoroughly demonstrated.

The Editor.

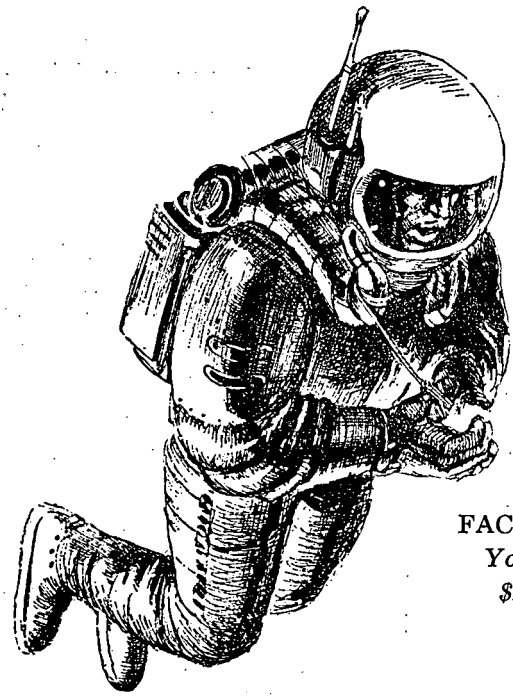


Behold the tortoise: He maketh no progress unless he sticketh out his neck

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

"WE KNOW WHERE WE ARE GOING..."

Where? Into Space?
Into the Atom?
Into the future—for sure!

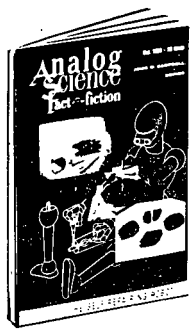


Keeping up with the world . . . used to be enough. Now—we have to know where the world is going. Science is what we know. Analog is what we're going to find out. Keeping up with Analog . . . is keeping up with the future. You do it. Many of your friends want to, also. And so—this Christmas-gift suggestion: a year of

ANALOG SCIENCE FACT & FICTION— 12 issues.

You can give it for just $4.00—$2.00 less than the newsstand cost of the same issues.

Take a few moments right now, to check your gift list. For everyone on it, as interested in the future as you are: order a gift of ANALOG SCIENCE FACT & FICTION! Elsewhere in this issue, you'll find an order-form bound in. Use it to order your gifts—including one for yourself! If it's too short for your needs, additional orders may be listed on a separate sheet. Please make certain you include all necessary information. Your gift for the coming year will be announced before Christmas, with a handsome gift-greeting card, signed as you indicate.

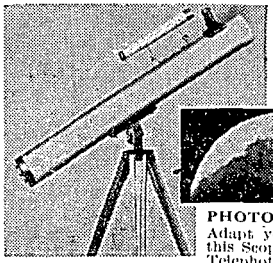


LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

GET READY FOR THE SPACE and SCIENCE ERA! SEE SATELLITES, MOON ROCKETS

AMAZING SCIENCE BUYS
for FUN, STUDY or PROFIT

EXCELLENT for XMAS GIFTS!



PHOTOGRAPHERS! Adapt your camera to this Scope for excellent Telephoto shots and fascinating photos of moon

. . . SEE THE STARS, MOON, PLANETS CLOSE UP

3" Astronomical Reflecting Telescope

Assembled and ready to use! 60- to 180-Power
An Unusual Buy—Famous Mt. Palomar Type

Assembled — Ready to use! You'll see the Rings of Saturn the fascinating planet Mars, huge craters on the Moon Star Clusters, Moons of Jupiter in detail, Galaxies! Equatorial mount with lock on both axes. Aluminized and overcoated 3" diameter high-speed f/10 mirror. Telescope *comes equipped with a 60X eyepiece and a mounted* Barlow Lens, giving you 60- to 180-power. An Optical Finder Telescope, always so essential is also included. Sturdy, hardwood portable tripod. FREE with Scope: Valuable STAR CHART plus 272-page "HANDBOOK OF HEAVENS" plus "HOW TO USE YOUR TELESCOPE" BOOK.

Stock No. 85,050-A . . . . . $29.95 Postpaid

4¼" Reflecting Telescope — up to 255 Power, all-metal pedestal mount.
Stock No. 85,105-A
$79.50 F.O.B., Barrington, N. J.

CRYSTAL GROWING KITS

Grow breath taking display of large crystals with this set.
Stock No. 70,336-A . . . . . $9.50 Postpaid
(See article in Oct. 1960 issue of Analog Science Fact & Fiction) "Self Repairing Robot."

BEAUTIFUL CIRCULAR DIFFRACTION GRATING JEWELRY

A Dazzling Rainbow of Color

As a scientific phenomenon, this new kind of jewelry is capturing attention everywhere. Shimmering rainbows of gem-like color in jewelry of exquisite beauty — made with CIRCULAR DIFFRACTION GRATING REPLICA. Just as a prism breaks up light into its full range of individual colors, so does the DIFFRACTION GRATING.

Stock No. 30,349-A Earings . . . . . $2.75 Ppd.
Stock No. 30,350-A Cuff Links . . . . . $2.75 Ppd.
Stock No. 30,372-A Pendant . . . . . $2.75 Ppd.
Stock No. 30,390-A Tie-Clasp . . . . . $2.75 Ppd.

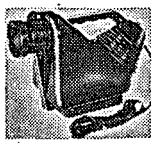
LIFE-SIZE HUMAN SKULL

Skull is anatomically correct — made of natural bone color, bone hard, *life-time plastic. Parts snap together* — take apart. Spring-action lower jaw, removable skull cap for examination of skull cavity, nasal passages, etc. Stand and Instruction and Anatomy Chart included.

Stock No. 70,294-A . . . . . $4.95 Postpaid

TERRIFIC BUY! AMERICAN MADE!

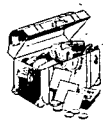
OPAQUE PROJECTOR



Projects illustrations up to 3" x 3¼" and enlarges them. No film or negatives needed. Projects charts, diagrams, pictures, photos, lettering in full color or black-and-white. Operates on 115 volt, A.C. current, 6-ft. extension cord and plug included. Operates on 60-watt bulb, not included. Approved by Underwriters' Laboratories, Inc. Size 12" x 8" x 4½" wide. Wt. 1 lb., 2 oz. Plastic case with built-in handle
Stock No. 70,199-A . . . . . $7.95 Postpaid

SCIENCE TREASURE CHESTS

For Boys—Girls—Adults!
Excellent "Science Fair" Material!

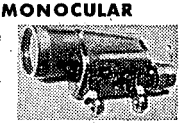


Science Treasure Chest — Extra-powerful magnets, polarizing filters, compass, one-way-mirror film, prism, diffraction grating, and lots of other items for hundreds of thrilling experiments, plus a Ten-Lens Kit for making telescopes, microscopes, etc. Full instructions included.

Stock No. 70,342-A . . . . . $5.00 Ppd.

Science Treasure Chest DeLuxe — Everything in Chest above plus exciting additional items for more advanced experiments including crystal-growing kit, electric motor, molecular models set, first-surface mirrors, and lots more.
Stock No. 70,343-A . . . . . $10.00 Postpaid

BARGAIN! 7 x 50 MONOCULAR



Fine quality, American made instrument — war surplus! Actually ½ of U. S. Govt. 7 x 50 Binocular. Brand new.
Stock No. 50,003-A.
$15.00 Postpaid

WAR SURPLUS ELECTRIC GENERATOR

Brand-new Signal Corps Generator for endless experiments, electrical uses, demonstrations. Generates up to 90 volts by turning crank. Use in high impedance relays, Ring bells. Or charge ground and bring up night crawlers for fishing bait. Has 2 Alnico Magnets. Weight 2 lbs. Cost Govt. $15.00.
Stock No. 50,225-A . . . . . $4.95 Postpaid

Get FREE CATALOG "A"

144 PAGES—OVER 1000 BARGAINS

World's largest variety of Optical Items. Bargains galore. . . . War surplus — Imported — Domestic! Microscopes, Telescopes, Satellite Telescopes. Infrared sniperscopes and parts. Prisms, Lenses, Reticles, Mirrors and dozens of other hard-to get Optical Items.

Write for Free Catalog "A"

ORDER BY STOCK NUMBER . SEND CHECK OR MONEY ORDER . SATISFACTION GUARANTEED!

EDMUND SCIENTIFIC CO., BARRINGTON, N. J.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED